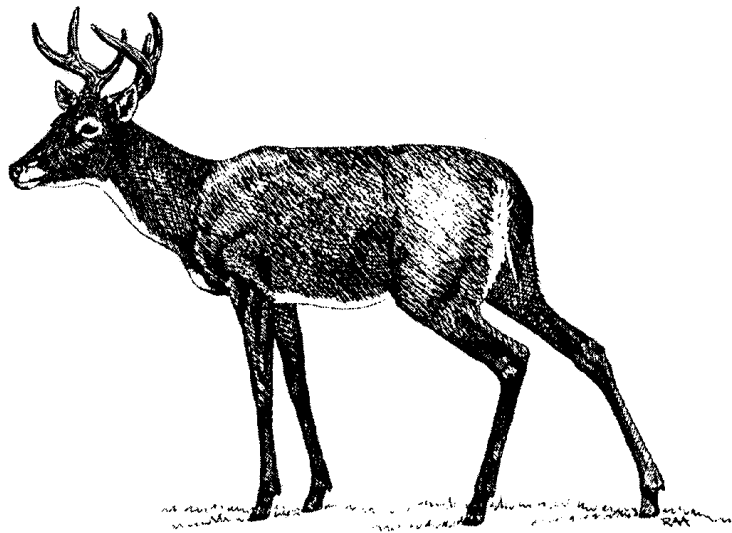


# **ENVIRONMENTAL ASSESSMENT**

## **An Integrated Wildlife Damage Management Approach for the Management of White-tailed Deer Damage In the State of New York**

**January 2003**



**United States Department of Agriculture  
Animal and Plant Health Inspection Service  
Wildlife Services**

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## List of Acronyms

NYSDEC	New York State Department of Environmental Conservation
IWDM	Integrated Wildlife Damage Management
MBTA	Migratory Bird Treaty Act
NWRC	National Wildlife Research Center
T & E	Threatened and Endangered (species)
USDA	United States Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WS	Wildlife Services (USDA, APHIS)

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## Introduction

Within New York and across the United States, wildlife habitat has been substantially changed as human populations expand and land is used for human needs. These human uses and needs often compete with wildlife that increases the potential for conflicting human/wildlife interactions. In addition, segments of the public desire protection for all wildlife; this protection can create localized conflicts between human and wildlife activities. The *Animal Damage Control Programmatic Final Environmental Impact Statement* (EIS) summarizes the relationship in American culture of wildlife values and wildlife damage in this way (United States Department of Agriculture (USDA) 1997):

*"Wildlife has either positive or negative values, depending on varying human perspectives and circumstances . . . Wildlife is generally regarded as providing economic, recreational and aesthetic benefits . . . and the mere knowledge that wildlife exists is a positive benefit to many people. However . . . the activities of some wildlife may result in economic losses to agriculture and damage to property . . . Sensitivity to varying perspectives and value is required to manage the balance between human and wildlife needs. In addressing conflicts, wildlife managers must consider not only the needs of those directly affected by wildlife damage but a range of environmental, sociocultural and economic considerations as well."*

WS is a cooperatively funded, service-oriented program from which other governmental agencies and entities may request assistance. Before any wildlife damage management is conducted, Cooperative Agreements, Agreements for Control or other comparable documents are in place. As requested, WS cooperates with land and wildlife management agencies to reduce wildlife damage effectively and efficiently according to applicable federal, State and local laws and Memorandums of Understanding (MOUs) between WS and other agencies. WS's mission, developed through its strategic planning process, is: 1) "to provide leadership in wildlife damage management in the protection of America's agricultural, industrial and natural resources, and 2) to safeguard public health and safety." WS's Policy Manual reflects this mission and provides guidance for engaging in wildlife damage management through:

- training of wildlife damage management professionals;
- development and improvement of strategies to reduce losses and threats to humans from wildlife;
- collection, evaluation, and dissemination of management information;
- informing and educating the public on how to reduce wildlife damage; and
- providing data and a source for limited-use management materials and equipment, including pesticides (USDA 1999).

Wildlife damage management is the science of reducing damage or other problems caused by wildlife and is recognized as an integral part of wildlife management (The Wildlife Society 1992). Wildlife Services (WS) uses an Integrated Wildlife Damage Management (IWDM) approach, known as Integrated Pest Management (WS Directive 2.1051), in which a combination of methods may be used or recommended to reduce wildlife damage. IWDM is described in Chapter 1:1-7 of USDA (1997). These methods may include alteration of cultural practices and habitat and behavioral modification to prevent or reduce damage. The reduction of wildlife damage may require that the local populations of offending animal(s) be reduced through lethal means.

The biological carrying capacity (BCC) of a wildlife population is defined as the maximum number of animals that an area can support without degradation to the animal's health and the environment over an extended period of time. When this number is exceeded, the health of the population begins to suffer, reproduction declines, parasitism and disease increase, and habitat quality and diversity decrease due to overbrowsing of plant species preferred as food by deer (Kroll et al. 1986). Overbrowsing negatively impacts the habitat and landscape, and overall animal health declines due to less nutritious food items being available.

The cultural carrying capacity (CCC) is defined as the maximum density of a given species that can coexist compatibly with the local human population (Decker and Purdy 1988). This term is useful because it defines when conflicts with deer have exceeded an acceptable level, and provides managers with a target for establishing management objectives. Certain factors may influence the CCC, such as landscape or vegetation impacts, threats to public safety, the potential for illegal killing of deer, and personal attitudes and values. The threshold of wildlife damage acceptance is a primary limiting factor in determining the CCC.

For any given damage situation, there will be varying acceptance thresholds by those directly, as well as indirectly, affected by the damage. Both the CCC and BCC are important factors in managing conflicts between humans and deer.

This environmental assessment (EA) documents the analysis of the potential environmental effects of a proposed integrated white-tailed deer (*Odocoileus virginianus*) damage management program to alleviate damage to agriculture, property, natural resources, and human health and safety. This analysis relies mainly on existing data contained in published documents (Appendix A), including the *Animal Damage Control Program Final Environmental Impact Statement* (USDA 1997) to which this EA is tiered. USDA 1997 may be obtained by contacting the USDA, Animal and Plant Health Inspection Service (APHIS), WS Operational Support Staff at 4700 River Road, Unit 87, Riverdale, MD 20737-1234.

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<sup>1</sup> WS Policy Manual - Provides guidance for WS personnel to conduct wildlife damage management activities through Program Directives. WS Directives referenced in this EA can be found in the manual but will not be referenced in the Literature Cited Appendix.

The authority for management of resident wildlife species is the responsibility of the New York State Department of Environmental Conservation (NYSDEC) and deer are classified as protected big game (New York State Environmental Conservation Law §11-0103). NYSDEC collects and compiles information on white-tailed deer population trends and take, and uses this information to manage deer populations. This information has been provided to WS to assist in the analysis of potential impacts of WS activities on the deer herd in New York.

WS is the federal agency directed by law and authorized to protect American resources from damage associated with wildlife (Animal Damage Control Act of March 2, 1931, as amended 46 Stat. 1486; 7 USC. 426-426c and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, Public law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 USC 426C)). To fulfill this Congressional direction, WS activities are conducted to prevent or reduce wildlife damage caused to agricultural, industrial and natural resources, property, and threats to public health and safety on private and public lands in cooperation with federal, state and local agencies, private organizations, and individuals. Therefore, wildlife damage management is not based on punishing offending animals but as one means of reducing damage and is used as part of the WS Decision Model (Slate et al. 1992). The imminent threat of damage or loss of resources is often sufficient for individual actions to be initiated. The need for action is derived from the specific threats to resources or the public. Wildlife Service's vision is to improve the coexistence of people and wildlife, and its mission is to provide Federal leadership in managing problems caused by wildlife.

Normally, according to the APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions may be categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6,000- 6,003, (1995)). WS has decided in this case to prepare this EA to facilitate planning, interagency coordination, and the streamlining of program management, and to clearly communicate with the public the analysis of individual and cumulative impacts. In addition, this EA has been prepared to evaluate and determine if there are any potentially significant or cumulative impacts from the proposed and planned damage management program. All wildlife damage management that would take place in New York would be undertaken according to relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act (ESA). Notice of the availability of this document will be made available consistent with the agency's NEPA procedures.



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## CHAPTER 1      PURPOSE OF AND NEED FOR ACTION

### 1.1 Preferred Alternative

Wildlife Services proposes to administer an Integrated Wildlife Damage Management (IWDM) approach in consultation and coordination with the New York Department of Environmental Conservation (NYSDEC) to alleviate white-tailed deer damage to agriculture, property, natural resources, and human health and safety. An IWDM approach would be implemented on all private and public lands of New York where a need exists, assistance is requested from landowners or public officials, and funding is available. An IWDM strategy would be recommended and used, encompassing the use of practical and effective methods of preventing or reducing damage while minimizing harmful effects of damage management measures on humans, other species, and the environment. Under this action, WS would provide technical assistance and operational damage management, including non-lethal and lethal management methods by applying the WS Decision Model (Slate et al.1992). When appropriate, habitat modifications, harassment, repellents, and physical exclusion could be recommended and utilized to reduce deer damage. In other situations, deer would be removed as humanely as possible by sharp shooting and live capture followed by euthanasia under permits issued by NYSDEC. In determining the damage management strategy, preference would be given to practical and effective nonlethal methods. However, nonlethal methods may not always be applied as a first response to each damage problem. The most appropriate response could often be a combination of nonlethal and lethal methods, or there could be instances where application of lethal methods alone would be the most appropriate strategy. Deer damage management would be conducted in the State, when requested, on private or public property after an *Agreement for Control* or other comparable document has been completed. All deer damage management would be consistent with other uses of the area and would comply with appropriate federal, state and local laws.

### 1.2 Purpose

The purpose of white-tailed deer damage management in New York is primarily directed to the alleviation of deer damage to agricultural resources, damage to urban/suburban landscaping, damage to property and human safety from deer-vehicle and deer-aircraft collisions, and concerns about the spread of disease. Under Action 5 (Integrated deer damage management program: no action), deer damage management could be conducted on private, federal, state, tribal, county, and municipal lands in the state of New York upon request for WS assistance.

### 1.3 Background and Need for Action

#### 1.3.1 New York Deer Population History and Status

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During the late 1700s through the mid 1800s information on deer populations in New York comes mostly from accounts of deer carcasses found following severe winters, from personal hunting journals, or from anthropological knowledge of local native American populations (Severinghaus and Brown 1956). Early European explorers to New York found the best deer habitat in what are now Erie, Genesee, and Livingston Counties where Native Americans managed the habitats of these areas with fire. Wildlife historians also believe that deer were found in abundance in the fertile valleys, the Lake Plains, and the Finger Lakes regions.

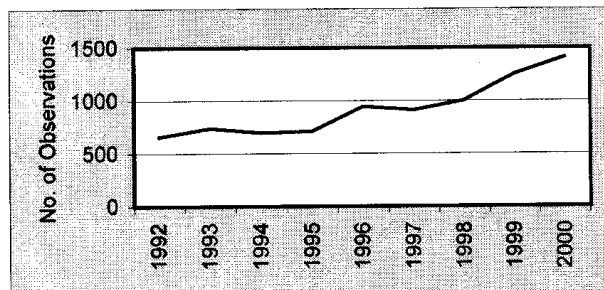
From 1890-1900 the centers of population for deer in New York tended to be in the central Adirondacks while deer populations in the Catskill Mountains area were being extirpated. Deer were also immigrating to New York from northern Pennsylvania, Massachusetts, and northern Vermont (Severinghaus and Brown 1956). In describing New York's deer population from 1880 through the 1950s, it is most useful to divide the state into the following three regions: north, southeast, and western/central.

From 1931 until 1948 deer populations in the north region (Adirondacks) increased steadily, with the exception of several years of starvation losses. During this time the deer population in the southeast region increased slowly to an estimated level of overabundance (Severinghaus and Brown 1956).

From 1956 until 1972, harvest totals in the southeast region revolved around 14,000 bucks per year, jumping to around 23,000 per year between 1973 and 1982 (Stickney 1983). Since 1956 the western/central region has seen the largest increase in deer harvests, fluctuating between levels of 25,191 and 43,851 from 1973 to 1982. In 2000 harvests totaled 134,000 bucks and 15,000 antlerless deer (NYSDEC 2001).

### 1.3.2 Deer Damage to Agriculture

Deer damage to resources in New York is increasing. In 1992 NYSDEC received 658 complaints related to deer damage (NYSDEC 2001). This number has consistently increased to 1,409 complaints in 2000, a 214% increase during 8 years (see graph below). Further, these numbers represent an increase in financial losses from \$1.14 million in 1992 to \$3.16 million in 2000. During this same period the number of deer killed under nuisance permits increased from 910 to 4,314 deer. Appendix B lists the number of reports by agricultural resource impacted (e.g., corn, beans, etc.) for 1997-2000.



Total number of complaints received by NYSDEC for deer damage to agricultural resources.

### 1.3.3 Deer-Vehicle Collisions

Deer-vehicle collisions are a serious concern nationwide because of losses to property and the potential for human injury and death (Conover 1997, Conover et al. 1995, Romin and Bissonette 1996). Conover et al. (1995) estimated that 1.5 million deer-vehicle collisions occur each year in the United States and that the average cost to repair the vehicle after a collision with a deer was \$1,500. Conover et al. (1995) estimated that the total damage to vehicles in the United States each year from deer-vehicle collisions is greater than \$1 billion. Additionally, Conover et al. (1995) estimated that deer-vehicle collisions in the United States result in 29,000 injuries and 211 human fatalities annually. Nationwide Insurance (1993) estimated that 120 people are killed annually in animal-vehicle accidents in the United States.

In New York, the statewide number of reported deer-vehicle collisions in which deer were killed varies from 9,111 (1996) to 11,822 (1992). In 2000, New York law enforcement agencies reported 9,253 collisions in which deer were killed. Often, deer-vehicle collisions in which a deer carcass was not recovered or little vehicle damage occurred go unreported. A Cornell University study estimates that the actual number of deer-vehicle collisions could be as high as six times the reported number (Decker et al. 1990).

### 1.3.4 Deer Hazards at Airports

Airports provide ideal conditions for feeding and bedding sites for deer due to the large grassy areas adjacent to brushy, forested habitat used as noise barriers. Deer living within airport boundaries are usually protected from hunting and many other human disturbances.

Deer-aircraft strikes can result in loss of human life, injury to passengers or people on the ground, damage or malfunction of aircraft, aircraft navigational aids, or airport facilities. Mammals colliding with aircraft during the most vulnerable phases of flight, takeoff or landing, can cause the aircraft to crash or sustain physical damage (USDA 1998). Mammals are characteristically unpredictable in their initial response to approaching aircraft. Deer may wander onto runway surfaces and be startled into the path of oncoming aircraft, and at night, they may freeze when caught in the beams of landing lights, resulting in a strike. The majority of deer strikes occur at night and in the fall during the

matings season (Dolbeer et al. 1995). WS has consulted with several airports in New York in regards to deer related problems.

White-tailed deer are a commonly encountered problem at airfields in New York, threatening the safe operation of aircraft at those facilities. New York has a total of 151 public use airports, 68 of which are subject to FAA Federal Aviation Regulations Part 139 (Ralph Carrozza, FAA 2001, personal communication). Collisions between deer and aircraft can cause major damage to the aircraft, and potentially cause injury and loss of human life. Serious consequences are also possible if pilots lose control of the aircraft while attempting to avert a collision with deer. From 1990 through 2000 there were 330 reported deer-aircraft strikes in the U. S. (USDA Wildlife-aircraft Strike Database, Sandusky, Ohio). Thirty-seven (11%) of these strikes occurred in New York.

### 1.3.5 Damage to Landscaping and Natural Resources

Deer browsing damages and destroys landscaping and ornamental trees, shrubs, and flowers. As rural areas are developed, deer habitat may actually be enhanced because fertilized lawns, gardens, and landscape plants serve as high quality sources of food (Swihart et al. 1995). Furthermore, deer are prolific and adaptable, characteristics that allow them to exploit and prosper in most suitable habitat near urban areas, including residential areas (Jones and Witham 1990). Although damage to landscaping and ornamental plants has not been quantified in and around the parks, deer have caused severe and costly property damage to homeowners, the parks, and common areas. The succulent nature of many ornamental landscape plants, coupled with high nutrient contents from fertilizers, offers an attractive food source for deer. In addition to browsing pressure, male white-tailed deer damage ornamental trees and shrubs by antler rubbing which results in broken limbs and bark removal. While large trees may survive antler-rubbing damage, smaller saplings often die or become scarred to the point that they are not aesthetically acceptable for landscaping.

Deer overabundance can affect native vegetation and natural ecosystems in addition to ornamental landscape plantings. White-tailed deer selectively forage on vegetation (Strole and Anderson 1992), and thus can have substantial impacts on certain herbaceous and woody species and on overall plant community structure (Waller and Alverson 1997). These changes can lead to adverse impacts on other wildlife species, which depend on these plants for food and/or shelter. Numerous studies have shown that over browsing by deer can decrease tree reproduction, understory vegetation cover, plant density, and plant diversity (Warren 1991). For example, in the Great Smokey Mountains National Park in Tennessee, an area heavily populated by deer had a reduction in the number of plant species, a loss of hardwood species and a predominance of conifer species compared to an ecologically similar control area with fewer deer (Bratton 1979). This alteration and degradation of habitat from over-browsing by deer can have a detrimental effect on deer herd health and may displace other wildlife communities (e.g., neotropical migrant songbirds and small mammals) that depend upon the understory vegetative habitat destroyed by deer browsing (VDGIF 1999). Similarly, De Calesta (1997) reported that

deer browsing affected vegetation that songbirds need for foraging surfaces, escape cover, and nesting. Species richness and abundance of intermediate canopy nesting songbirds was reduced in areas with higher deer densities (De Calesta 1997). Intermediate canopy-nesting birds declined 37% in abundance and 27% in species diversity at higher deer densities. Five species of birds were found to disappear at densities of 38.1 deer per square mile and another two disappeared at 63.7 deer per square mile. Casey and Hein (1983) found that 3 species of birds were lost in a research preserve stocked with high densities of ungulates and that the densities of several other species of birds were lower than in an adjacent area with lower deer density. (Both De Calesta and Casey and Hein's study area were located in Pennsylvania.) Waller and Alverson (1997) hypothesize that by competing with squirrels and other fruit-eating animals for oak mast, deer may further affect many other species of animals and insects.

#### 1.3.6 Threats to Human and Livestock Health and Safety from Disease Transmission

Lyme Disease. Currently, the most common zoonosis involving deer is Lyme disease, caused by the spirochete *Borrelia burgdorferi* and vectored to humans by the deer tick (*Ixodes dammini* in the eastern U.S.) (Conover 1997). Initial symptoms of Lyme disease include a flu-like illness with headache, fever, muscle or joint pain, neck stiffness, swollen glands, jaw discomfort, and inflammation of the eye membranes (McLean 1994). If left untreated, heart, nervous system, and joint manifestations may develop (McLean 1994).

Research has shown a correlation between infected ticks, deer numbers, and Lyme disease cases (Deblinger et al. 1993, Magnarelli et al. 1984). Deer are an important reservoir for Lyme disease and are the primary host for the adult deer tick (Conover 1997). The Montgomery County Health Department, Pennsylvania (MCHD) cites that Lyme disease incidence has also been linked to landscape features such as wooded, residential areas versus developed, urban areas (MCHD 2000). From 1986-1993 annual case reports from New York comprised between 35-40 percent of all Lyme disease reported to the CDC. According to MCHD (2000), the CDC calculated an annual incidence of 5.5 cases/100,000 population over a 5 year period (1993-97). From 1996-1998, New York Department of Health reported an average of 23.7 cases/per 100,000 population, with Lyme disease reported in 58 of 62 New York counties.

In 1986, another serious tick-borne zoonosis, human ehrlichiosis, was discovered in the United States (McQuiston et al. 1999). Two distinct forms of the illness may affect humans: human monocytic ehrlichiosis (HME) and human granulocytic ehrlichiosis (HGE) (McQuiston et al. 1999, Lockhart et al. 1997). The bacterial agents that cause ehrlichiosis are transmitted to humans by infected ticks that acquire the agents from feeding on infected animal reservoirs (McQuiston et al. 1999). Ehrlichiosis in humans may result in fever, headache, myalgia, nausea, and occasionally death (McQuiston et al. 1999, Little et al. 1998). HME is the type of ehrlichiosis predominantly found in the southeastern, south-central, and mid-Atlantic U.S. White-tailed deer are major hosts for

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*Amblyomma americanum*, the tick that transmits HME, and deer have been identified as a reservoir for HME (Little et al. 1998, Lockhart et al. 1997).

Bovine Tuberculosis. Tuberculosis is a contagious disease of both animals and humans and can be caused by three specific types of the *Mycobacterium* bacteria. Bovine TB, caused by *Mycobacterium bovis*, primarily affects cattle and other bovine-like animals (e.g., bison, deer, and goats) but can be transmitted to humans and other animals.

Pathogenesis of *M. bovis* infection in white-tailed deer begins with either inhalation or ingestion of infectious organisms. Transmission is aided by high deer density and prolonged contact, as occurs at supplemental feeding sites. The bacilli commonly invade the tonsil first, later spreading to other cranial lymph nodes. If the infection is contained, it spreads no further. In some animals the infection spreads to the thorax where it may disseminate throughout the lungs; these animals may then shed the bacteria by aerosol or oral secretions. The most susceptible animals develop disseminated infections throughout their abdominal organs, and can even shed bacilli through their feces or through their milk to their fawns.

Bovine TB has affected both animal and human health for years. During the early part of the 20<sup>th</sup> century the disease affected more U.S. farm animals than did all other infectious diseases combined. The United States Department of Agriculture (USDA) Cooperative State-Federal Tuberculosis Eradication Program, which began in 1917, is chiefly responsible for the near-eradication of the disease from the nation's livestock population.

Since the 1930's Bovine TB has not been documented in free ranging deer populations in New York. The only state with documented significant levels of Bovine TB in white-tailed deer is Michigan. This high rate of TB in Michigan is due to an artificially high density of deer in close association at winter food dumps provided for the deer herds. High deer densities most often occur when the amount of naturally available foods is supplemented, such as in urban or suburban environments or in cases such as Michigan.

Foot and Mouth Disease. There are no known cases of Foot and Mouth Disease in the United States. However, deer are a known vector of this virulent disease, and as such, USDA, APHIS, WS of New York is a member of the Foot and Mouth Emergency Response Task Force.

Chronic Wasting Disease. Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy (TSE) of deer and elk. To date, this disease has been found only in cervids (members of the deer family) in North America. CWD is typified by chronic weight loss leading to death. There has not been a confirmed case of CWD in New York, however state officials are monitoring and preparing contingency plans for the future. In an effort to prevent the introduction of CWD, in April 2002 the state placed a ban on the importation of all deer and elk into New York. Over 400 entities in New York raise nearly 10,000 deer and elk in captivity and have routinely imported captive-bred deer and elk from other states. CWD has been identified in captive or wild deer or elk in Colorado,

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Wisconsin, Nebraska, Kansas, Montana, South Dakota, New Mexico, and Oklahoma as well as in the Canadian province of Saskatchewan.

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## **1.4 Operational Framework for Deer Damage Management in New York**

The potential for deer populations to exceed carrying capacity can negatively effect plant and animal species, conflict with land-use practices, and increase risk to human health and safety, any of which would necessitate effective deer damage management. Financial and logistical constraints require that deer management programs be practical and fiscally responsible.

### **1.4.1 Wildlife Services Objectives**

- In consultation with the NYSDEC, respond to requests for assistance with the appropriate action (technical assistance or direct control) as determined by New York WS personnel, applying the ADC Decision Model (Slate et al. 1992).
- Hold the lethal take of nontarget animals by WS personnel during damage management to zero.

### **1.4.2 Relationship of this EA to Other Environmental Documents**

WS has issued a final EIS (USDA 1997) and Record of Decision on the National APHIS-WS program. This EA is tiered to that EIS.

New York's State Environmental Quality Review Act (SEQR) requires all state and local government agencies to consider environmental impacts equally with social and economic factors during discretionary decision-making. SEQR requires these agencies to assess the environmental significance of all actions they have discretion to approve, fund or directly undertake.

### **1.4.3 Decisions to be Made**

Based on the scope of this EA, the decisions to be made are:

- Should WS conduct white-tailed deer damage management in New York to alleviate damage to agriculture, property, natural resources, and human health and safety?
- What mitigation measures should be implemented?
- Would the Preferred Alternative have significant impacts on the quality of the human environment requiring preparation of an EIS?



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#### 1.4.4 Scope of this Environmental Assessment Analysis

Actions Analyzed. This EA evaluates white-tailed deer damage management to protect property, agricultural resources, natural resources, and human health and safety in the state of New York.

American Indian Lands and Tribes. Currently WS does not have any MOUs or signed agreements with any American Indian tribe in New York. If WS enters into an agreement with a tribe for white-tailed deer damage management, this EA would be reviewed and supplemented if appropriate to insure compliance with NEPA.

Period for which this EA is Valid. This EA would remain valid until New York WS and other appropriate agencies determine that new needs for action, changed conditions or new alternatives having different environmental effects must be analyzed. At that time, this analysis and document would be supplemented pursuant to NEPA. Review of the EA would be conducted each year to ensure that the EA is sufficient.

Site Specificity. This EA analyzes the potential impacts of white-tailed deer damage management and addresses activities on all private and public lands in New York under MOU, Cooperative Agreement, and in cooperation with the appropriate public land management agencies. It also addresses the impacts of deer damage management on areas where additional agreements may be signed in the future. Because the Preferred Alternative is to reduce damage and because the program's goals and directives are to provide services when requested, within the constraints of available funding and workforce, it is conceivable that additional wildlife damage management efforts could occur. Thus, this EA anticipates this potential expansion and analyzes the impacts of such efforts as part of the program. This EA emphasizes major issues as they relate to specific areas whenever possible; however, many issues apply wherever deer damage and resulting management occurs, and are treated as such. The standard WS Decision Model (Slate et al. 1992) would be the site-specific procedure for individual actions conducted by WS in New York. (See Description of Alternatives for a description of the Decision Model and its application).

#### Relationship to Other Environmental Documents

Increasing deer populations, improved technical knowledge, and dynamic social conditions have created a need for new environmental documents. This EA will replace any other existing EA for deer management in New York by WS New York.

Public Involvement/Notification. As part of this process, and as required by the Council on Environmental Quality (CEQ) and APHIS-NEPA implementing regulations, this document and its Decision are being made available to the public through "Notices of Availability" (NOA) published in local media and through direct mailings of NOA to parties that have specifically requested to be notified. New issues or alternatives raised after publication of public notices will be fully considered to determine whether the EA and its Decision should be revisited and, if appropriate, revised.

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## 1.5 Authority and Compliance

### 1.5.1 New York State Department of Environmental Conservation

The New York State Department of Environmental Conservation (NYSDEC) was established by chapter 140 of the New York State Laws of 1970 and is continued under the current laws. NYSDEC is authorized to manage wildlife resources for the state under TITLE 3—GENERAL POWERS AND DUTIES OF THE DEPARTMENT. NYSDEC is responsible for the management of the natural population of white-tailed deer in New York (See Appendix C—Environmental Conservation Law Sections 11-0105 and 11-0305 Paragraph 10). Under Section 11-0521, all deer taken by WS New York will be by permit from the New York State Department of Environmental Conservation.

### 1.5.2 Wildlife Services Legislative Authority

The primary statutory authority for the Wildlife Services program is the Act of 1931, as amended in the Fiscal Year 2001 Agriculture Appropriations Bill, which provides that:

*“The Secretary of Agriculture may conduct a program of wildlife services with respect to injurious animal species and take any action the Secretary considers necessary in conducting the program. The Secretary shall administer the program in a manner consistent with all of the wildlife services authorities in effect on the day before the date of the enactment of the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2001.”*

Since 1931, with the changes in societal values, WS policies and its programs place greater emphasis on the part of the Act discussing “bringing (damage) under control”, rather than “eradication” and “suppression” of wildlife populations. In 1988, Congress strengthened the legislative mandate of WS with the Rural Development, Agriculture, and Related Agencies Appropriations Act. This Act states, in part:

*“That hereafter, the Secretary of Agriculture is authorized, except for urban rodent control, to conduct activities and to enter into agreements with States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of nuisance mammals and birds and those mammals and birds species that are reservoirs for zoonotic diseases, and to deposit any money collected under any such agreement into the appropriation accounts that incur the costs to be available immediately and to remain available until expended for Animal Damage Control activities.”*

### 1.5.3 U.S. Department of Interior, Fish and Wildlife Service Legislative Authority

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The U. S. Fish and Wildlife Service (USFWS) has no legislative authority in actions taken to manage mammals that are not listed as a threatened or endangered species.

#### 1.5.4 Authority of Federal Agencies in Wildlife Damage Management in New York

Through a Memorandum of Understanding (MOU) among [REDACTED]

[REDACTED] and U.S. Department of Agriculture, Wildlife Services has established a cooperative relationship among these agencies. This MOU authorizes WS "to reduce or control wildlife species detrimental to agriculture, public health and safety, or property" after consultation with the NYSDEC. WS is obligated to conduct control activities under the applicable Federal, State, and local laws and regulations. WS New York operates under a current New York State Fish and Wildlife License, number LCP01-333. This permit authorizes WS to "collect, take, and/or kill, possess, band/mark/tag, transport and release wildlife in the performance of the licensee's duties as state director, USDA, APHIS/Wildlife Services, as provided and authorized under federal regulations." This permit excludes the killing, collection, or possession of endangered/threatened species. In addition, the NYSDEC will issue permits to private individuals for the lethal control of deer under the authority of ECL Section 11-0521.

#### 1.5.5 Compliance with Relevant Federal and State Statutes

Several federal laws, state laws, and state regulations regulate WS wildlife damage management. WS complies with these laws and regulations, and consults and cooperates with other agencies as appropriate.

National Environmental Policy Act (NEPA). The National Environmental Policy Act (NEPA) of 1969 (42 USC Section 4231 et seq.) is implemented by Federal Agencies pursuant to Council on Environmental Quality (CEQ) Regulations (40 CFR Section 1500-1508) and agency implementing regulations. WS prepares analyses of the potential environmental impacts of program activities to meet procedural requirements of NEPA and to facilitate planning, decision-making, and public and interagency involvement. NEPA and its supporting regulations require that an EA be a concise public document that provides sufficient evidence and analysis to determine if an EIS should be prepared, aids in WS's compliance with NEPA, describes the need for action, alternatives, and environmental impacts, and includes a list of agencies/persons consulted.

Environmental documents pursuant to NEPA must be completed before work plans consistent with the NEPA decision can be implemented. WS also coordinates specific projects and programs with other agencies. The purpose of these contacts is to coordinate any wildlife damage management that may affect resources managed by these agencies or affect other areas of mutual concern.

Endangered Species Act (ESA). It is Federal policy, under the ESA, that all Federal agencies seek to conserve threatened and endangered (T&E) species and utilize their

authorities in furtherance of the purposes of the Act (Sec.2(c)). Where appropriate, WS conducts Section 7 consultations with the U.S. Fish & Wildlife Service (USFWS) to ensure that *"any action authorized, funded or carried out by such an agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species . . . Each agency shall use the best scientific and commercial data available"* (Sec.7(a)(2)). WS obtained a Biological Opinion (BO) from USFWS in 1992 describing potential effects on T&E species and prescribing reasonable and prudent measures for avoiding jeopardy (USDA 1997, Appendix F). WS is in the process of initiating formal consultation at the programmatic level to reevaluate the 1992 B.O. and to fully evaluate potential effects on T&E species listed or proposed for listing since the 1992 FWS BO. In addition to these programmatic efforts to comply with the ESA, individual WS programs may confer with FWS Ecological Services in the State of the Preferred Alternative to determine the presence of T&E species in project areas, and to identify potential impacts of the Preferred Alternative and other alternatives on these species.

National Historic Preservation Act (NHPA) of 1966 as amended. The National Historic Preservation Act (NHPA) of 1966, and its implementing regulations (36 CFR 800), requires federal agencies to: 1) determine whether activities they propose constitute "undertakings" that can result in changes in the character or use of historic properties and, 2) if so, to evaluate the effects of such undertakings on such historic resources and consult with the State Historic Preservation Office regarding the value and management of specific cultural, archaeological and historic resources, and 3) consult with appropriate American Indian Tribes to determine whether they have concerns for traditional cultural properties in areas of these federal undertakings. WS actions on tribal lands are only conducted at the tribe's request and under signed agreement; thus, the tribes have control over any potential conflict with cultural resources on tribal properties. WS activities as described under the Preferred Alternative do not cause ground disturbances nor do they otherwise have the potential to significantly affect visual, audible, or atmospheric elements of historic properties and are thus not undertakings as defined by the NHPA. WS has determined deer damage management actions are not undertakings as defined by the NHPA because such actions do not have the potential to result in changes in the character or use of historic properties. A copy of this EA is being provided to each American Indian tribe in the State to allow them opportunity to express any concerns that might need to be addressed prior to a decision.

Environmental Justice and Executive Order 12898—"Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations."

Executive Order 12898, entitled, "Federal Actions to Address Environmental Justice in Minority. Populations and Low Income Populations" promotes the fair treatment of people of all races, income levels and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Environmental justice is the pursuit of equal justice and protection under the law for all environmental statutes and regulations without discrimination based on race, ethnicity, or socioeconomic status. It is a priority within APHIS and WS. Executive Order 12898 requires Federal agencies to make environmental justice part of their mission, and to

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identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies and activities on minorities and persons or populations of low income. APHIS implements Executive Order 12898 principally through its compliance with NEPA. All WS activities are evaluated for their impact on the human environment and compliance with Executive Order 12898. WS personnel use only legal, effective, and environmentally safe wildlife damage management methods, tools, and approaches. It is not anticipated that the Preferred Alternative would result in any adverse or disproportionate environmental impacts to minorities and persons or populations of low income.

Executive Order 13045—Protection of Children from Environmental Health and Safety Risks. Children may suffer disproportionately from environmental health and safety risks for many reasons, including their development physical and mental status. Because WS makes it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, WS has considered the impacts that this proposal might have on children. The proposed deer damage management would occur by using only legally available and approved methods where it is highly unlikely that children would be adversely affected. For these reasons, WS concludes that it would not create an environmental health or safety risk to children from implementing this Preferred Alternative.

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## **CHAPTER 2      AFFECTED ENVIRONMENTS AND ISSUES**

### **2.1      Affected Environments**

This EA analyzes the potential impacts of white-tailed deer damage management and addresses activities on all private and public lands in New York.

#### **2.1.1      Airports**

Of all wildlife species, deer are ranked as the most hazardous to aircraft, especially to smaller general aviation aircraft (Dolbeer et al. 2000), and they represent a serious threat to human health and safety. Airports are often secured areas with chain-link security fencing. Sometimes deer gain entrance into these airports where there is adequate cover and food, and they live there for all or part of the year. Because deer are ubiquitous throughout New York, it is possible for deer to be present at nearly any airport in the state.

#### **2.1.2      Properties where federal research laboratories are located**

Federal property containing research facilities are usually controlled access areas with security fencing. These same properties often are unconcerned with the presence of deer until the herd is large enough to impact the horticulture present and the health of the herd itself. When herds of unhealthy sizes occur on federal properties, USDA WS is often called upon to reduce their sizes.

#### **2.1.3      Urban and suburban and rural areas**

Other areas include farms and rural areas where deer are causing damage to agriculture through feeding and antler rubbing and potentially to livestock through the spread of disease. Public and private properties in rural and urban/suburban areas may also be affected where deer cause damage to landscaping, to natural resources, by vehicle collisions, and through threats to human health and safety from disease transmission.

### **2.2      Issues Analyzed in Detail**

The following issues have been identified as areas of concern requiring consideration in this environmental assessment:

#### **2.2.1      Effects on White-tailed Deer Populations**

There are concerns that the Preferred Alternative or any of the alternatives would result in the loss of local white-tailed deer populations or could have a cumulative adverse impact on regional or statewide populations.

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### 2.2.2 Effects on Plants and other Wildlife Species, including Threatened and Endangered Species

There are concerns among members of the public and wildlife professionals, including WS, that there is the potential for control methods used in the Preferred Alternative or any of the alternatives to inadvertently capture or remove nontarget animals or potentially cause adverse impacts to nontarget species populations, particularly T&E species. Special efforts are made to avoid jeopardizing Threatened and Endangered Species through biological evaluations of the potential effects and the establishment of special restrictions or mitigation measures. WS has consulted with the USFWS under Section 7 of the Endangered Species Act (ESA) concerning potential impacts of deer damage management control methods on T&E species and has obtained a Biological Opinion (B.O.). For the full context of the B.O., see Appendix F of the ADC FEIS (USDA 1997). WS's standard operating procedures include measures intended to mitigate or reduce the effects on nontarget species populations and are described in other sections of this EA.

To reduce the risks of adverse affects to nontarget species, WS would select damage management methods that are as target-selective as possible or apply such methods in ways to reduce the likelihood of negatively effecting nontarget species.

Some people are concerned about the damaging effects that deer are having on native flora and fauna, and on the recovery of state and federally listed Endangered and Threatened species, and species of concern. These people are concerned as to whether the Preferred Alternative or any of the alternatives would reduce such damage to acceptable levels.

### 2.2.3 Effects on Human Health and Safety

A common concern is whether the Preferred Alternative or any of the alternatives pose an increased threat to public and pet health and safety. In particular, there is concern that the methods of deer removal (i.e., trapping and sharp shooting) may be hazardous to people and pets. Another concern is that high deer populations pose a threat to human health and safety through the potential for deer-vehicle collisions, deer-aircraft collisions, and the spread of disease.

Firearm use is sensitive and a public concern because of safety issues relating to the public and firearms misuse. To ensure safe use and awareness, WS employees who use firearms to conduct official duties are required to attend an approved firearms safety-and-use training program within 3 months of their appointment and a refresher course every 3 years afterwards (WS Directive 2.615). WS employees who use firearms as a condition of employment, are required to sign a form certifying that they meet the criteria as stated in the *Lautenberg Amendment* which prohibits firearm possession by anyone who has been convicted of a misdemeanor crime of domestic violence.

### 2.2.4 Humaneness of methods to be used

The issue of humaneness, as it relates to the killing or capturing of wildlife is an important but complex concept. Kellert and Berry (1980) in a survey of American attitudes toward animals related that 58% of their respondents, "*... care more about the suffering of individual animals ... than they do about species population levels.*" Schmidt (1989) indicated that vertebrate pest control for societal benefits could be compatible with animal welfare concerns, if "*... the reduction of pain, suffering, and unnecessary death is incorporated in the decision making process.*"

Suffering has been described as a "*... highly unpleasant emotional response usually associated with pain and distress.*" However, suffering "*... can occur without pain ...*," and "*... pain can occur without suffering ...*" (American Veterinary Medical Association (AVMA) 1986). Because suffering carries with it the implication of a time frame, a case could be made for "*... little or no suffering where death comes immediately ...*" (California Department of Fish and Game 1991), such as the WS technique of shooting.

Defining pain as a component of humaneness may be a greater challenge than that of suffering. Pain obviously occurs in animals. Altered physiology and behavior can be indicators of pain, and identifying the causes that elicit pain responses in humans would "*... probably be causes for pain in other animals ...*" (AVMA 1986). However, pain experienced by individual animals probably ranges from little or no pain to significant pain (CDFG 1991). Some WS damage management methods such as traps and snares, may thus cause varying degrees of pain in different animal species for varying time frames. At what point pain diminishes or stops under these types of restraint has not been measured by the scientific community.

Pain and suffering as it relates to a review of WS damage management methods to capture animals, has both a professional and lay point of arbitration. Wildlife managers and the public would both be better served to recognize the complexity of defining suffering, since "*... neither medical or veterinary curricula explicitly address suffering or its relief*" (CDFG 1991).

Research suggests that with some methods, such as restraint in traps, changes in the blood chemistry of trapped animals indicate "*stress*" (USDA 1997: 3-81). However, such research has not yet progressed to the development of objective, quantitative measurements of pain or stress for use in evaluating humaneness.

Thus, the decision-making process involves tradeoffs between the above aspects of pain and humaneness. An objective analysis of this issue must consider not only the welfare of wild animals but also the welfare of humans if damage management methods were not used. Therefore, humaneness appears to be a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. The challenge in coping with this issue is how to achieve the least amount of suffering with the constraints imposed by current technology and funding.



WS has improved the selectivity and humaneness of management devices through research and is striving to bring new findings and products into practical use. Until new findings and products are found practical, a certain amount of animal suffering could occur when some methods are used in those situations when non-lethal damage management methods are not practical or effective.

New York WS personnel are experienced and professional in their use of management methods so that they are as humane as possible under the constraints of current technology and funding. Standard procedures used to maximize humaneness are listed in this EA. As appropriate, WS euthanizes live animals by methods recommended by the AVMA (Beaver et al. 2001) or the recommendations of a veterinarian, even though the AVMA euthanasia methods were developed principally for companion animals and slaughter of food animals, and not for free-ranging wildlife.

#### 2.2.5 Effects on Aesthetic Values

The human attraction to animals has been well documented throughout history and started when humans began domesticating animals. The American public is no exception and today a large percentage of households have pets. However, some people may consider individual wild animals and birds as "pets" or exhibit affection toward these animals, especially people who enjoy coming in contact with wildlife. Therefore, the public reaction is variable and mixed to wildlife damage management because there are numerous philosophical, aesthetic, and personal attitudes, values, and opinions about the best ways to manage conflicts/problems between humans and wildlife.

There is some concern that the Preferred Alternative or the alternatives would result in the loss of aesthetic benefits to the public, resource owners, or neighboring residents. Wildlife generally is regarded as providing economic, recreational, and aesthetic benefits (Decker and Goff 1987), and the mere knowledge that wildlife exists is a positive benefit to many people. Aesthetics is the philosophy dealing with the nature of beauty, or the appreciation of beauty. Therefore, aesthetics is truly subjective in nature, dependent on what an observer regards as beautiful.

Wildlife populations provide a range of social and economic benefits (Decker and Goff 1987). These include direct benefits related to consumptive and non-consumptive use (e.g., wildlife-related recreation, observation, harvest, sale), indirect benefits derived from vicarious wildlife related experiences (e.g., reading, television viewing), and the personal enjoyment of knowing wildlife exists and contributes to the stability of natural ecosystems (e.g., ecological, existence, bequest values) (Bishop 1987). Direct benefits are derived from a user's personal relationship to animals and may take the form of direct consumptive use (using up the animal or intending to) or non-consumptive use (viewing the animal in nature or in a zoo, photography) (Decker and Goff 1987). Indirect benefits or indirect exercised values arise without the user being in direct contact with the animal and come from experiences such as looking at photographs and films of wildlife, reading

about wildlife, or benefiting from activities or contributions of animals such as their use in research (Decker and Goff 1987). Indirect benefits come in two forms: bequest and pure existence (Decker and Goff 1987). Bequest is providing for future generations and pure existence is merely knowledge that the animals exist (Decker and Goff 1987).

New York WS recognizes that all wildlife has aesthetic value and benefit. WS only conducts deer damage management at the request of the affected home/property owner or resource manager. If WS received requests from an individual or official for deer damage management, WS would address the issues/concerns and consideration would be made to explain the reasons why the individual damage management actions would be necessary. Management actions would be carried out in a caring, humane, and professional manner.

#### 2.2.6 Effects on Regulated White-tailed Deer Hunting

Some people may be concerned that deer removal activities conducted by WS would affect regulated deer hunting by significantly reducing local deer populations. WS deer removal activities would primarily be conducted on populations and in areas where hunting access is restricted. In fact, lethal, management pressure applied to deer in these populations could serve to drive deer from these areas to places accessible to hunters. Further, the magnitude of the impact WS's activities will have on the deer population is considered low (see section 4.2, Alternative 5).

### 2.3 Issues not Considered in Detail With Rationale

#### 2.3.1 WS' Impact on Biodiversity

No New York WS deer damage management is, or will be, conducted to eradicate a native wildlife population. WS operates according to international, federal, and state laws and regulations enacted to ensure species viability. In addition, any reduction of a local population or group is frequently temporary because immigration from adjacent areas or reproduction replaces the animals removed. The impacts of the current WS program on biodiversity are minor and not significant nationwide, statewide, or region wide (USDA 1997). WS operates on a small percentage of the land area of the State, and the WS take of any wildlife species analyzed in this EA is a small percentage of the total population and is insignificant to the viability and health of the population.

#### 2.3.2 Appropriateness of Preparing an EA (Instead of an EIS) For Such a Large Area

Some individuals might question whether preparing an EA for an area as large as the state of New York would meet the NEPA requirements for site specificity. If in fact a determination is made through this EA that the Preferred Alternative would have a significant environmental impact, then an EIS would be prepared. In terms of considering cumulative impacts, one EA analyzing impacts for the entire state may provide a better analysis than multiple EA's covering smaller zones. In addition, New

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York WS only conducts deer damage management in small areas of the State where damage is occurring or likely to occur.

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## CHAPTER 3      ALTERNATIVES

### Introduction

This chapter consists of 6 parts: 1) an introduction, 2) description of alternatives considered and analyzed in detail including Alternative 5 (the Preferred Alternative), 3) a description of Integrated Wildlife Damage Management, 4) deer damage management methods available for use or recommendation by WS in New York, 5) alternatives considered but not in detail, with rationale, and 6) mitigation measures and standard operating procedures (SOPs) for deer damage management.

Alternatives were developed for consideration using the WS Decision Model (Slate et al. 1992), *Methods of Control* (USDA 1997, Appendix J), and the *Risk Assessment of Wildlife Damage Control Methods Used by the USDA Animal Damage Control Program* (USDA 1997, P).

The five alternatives analyzed in detail are:

- Alternative 1 – No Deer Damage Management by WS
- Alternative 2 – Technical Assistance Only
- Alternative 3 – Lethal Deer Damage Management only by WS
- Alternative 4 – Non-lethal Deer Damage Management only by WS
- Alternative 5 – Integrated Deer Damage Management Program: No Action (Preferred Alternative)

### 3.1 Alternatives Considered, Including the Preferred Alternative

#### Alternative 1. No Deer Damage Management by WS

This alternative would eliminate WS involvement in all deer damage management activities. WS would not provide direct operational or technical assistance and requesters of WS services would have to conduct their own deer damage management without WS input.

#### Alternative 2. Technical Assistance Only

This alternative would only allow New York WS to provide technical assistance to individuals or agencies requesting deer damage management. Individuals might choose to implement WS lethal and non-lethal recommendations, implement methods not recommended by WS, use contractual services of private businesses, or take no action. Appendix D describes methods available for recommendation by WS under this alternative.

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### Alternative 3. Lethal Deer Damage Management only by WS

Under this alternative, WS would provide only lethal direct control services and technical assistance. Requests for information regarding non-lethal management approaches would be referred to NYSDEC, local animal control agencies, or private businesses or organizations. Individuals might choose to implement WS lethal recommendations, implement non-lethal methods or other methods not recommended by WS, contract for WS lethal direct control services, use contractual services of private businesses, or take no action. Appendix D describes lethal methods available for recommendation and use by WS under this alternative.

### Alternative 4. Nonlethal Deer Damage Management only by WS

This alternative would require WS to use and recommend non-lethal methods only to resolve all deer damage problems. Requests for information regarding lethal management approaches would be referred to NYSDEC, local animal control agencies, or private businesses or organizations. Persons incurring deer damage could still resort to lethal methods or other methods not recommended by WS, use contractual services of private businesses that were available to them, or take no action. Appendix D describes a number of non-lethal methods available for recommendation and use by WS under this alternative.

### Alternative 5. Integrated Deer Damage Management Program: No Action (Preferred Alternative)

Under this alternative, Wildlife Services would administer an Integrated Wildlife Damage Management (IWDM) approach to alleviate white-tailed deer damage to agriculture, property, natural resources, and human health and safety. An IWDM approach would be implemented on all private and public lands of New York where a need exists, a request is received, and funding is available. An IWDM strategy would be recommended and used, encompassing the use of practical and effective methods of preventing or reducing damage while minimizing harmful effects of damage management measures on humans, other species, and the environment. Under this action, WS would provide technical assistance and operational damage management, including non-lethal and lethal management methods by applying the WS Decision Model (Slate et al. 1992). When appropriate, habitat modifications, harassment, repellants, and physical exclusion could be recommended and utilized to reduce deer damage. In other situations, deer would be removed as humanely as possible by sharp shooting and live capture followed by euthanasia under permits issued by the NYSDEC. In determining the damage management strategy, preference would be given to practical and effective non-lethal methods. However, non-lethal methods may not always be applied as a first response to each damage problem. The most appropriate response could often be a combination of non-lethal and lethal methods, or there could be instances where application of lethal methods alone would be the most appropriate strategy. Deer damage management would

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be conducted in the state, when requested, on private or public property after an *Agreement for Control* or other comparable document has been completed. All deer damage management would be consistent with other uses of the area and would comply with appropriate federal, state and local laws.

### **3.2 Deer Damage Management Strategies and Methodologies Available to WS**

The strategies and methodologies described below include those that could be used or recommended under Alternatives 2, 3, 4, and 5 described above. Alternative 1 would terminate both WS technical assistance and operational deer damage management by WS. Appendix D is a more thorough description of the methods that could be used or recommended by WS.

#### **3.2.1 Integrated Wildlife Damage Management (IWDM)**

The most effective approach to resolving wildlife damage is to integrate the use of several methods simultaneously or sequentially. The philosophy behind IWDM is to implement the best combination of effective management methods in a cost-effective<sup>2</sup> manner while minimizing the potentially harmful effects on humans, target and non-target species, and the environment. IWDM may incorporate cultural practices (i.e., restricting flying times, no feeding policy), habitat modification (i.e., exclusion), animal behavior modification (i.e., scaring), removal of individual offending animals, local population reduction, or any combination of these, depending on the circumstances of the specific damage problem.

#### **3.2.2 Technical Assistance Recommendations.**

"Technical assistance" as used herein is information, demonstrations, and advice on available and appropriate wildlife damage management methods. Technical assistance is generally provided following an on-site visit or verbal consultation with the requester. WS personnel provide technical assistance such as information, instructional sessions, demonstrations and advice on available deer damage management techniques. Technical assistance includes demonstrations on the proper use of management devices (pyrotechnics, exclusion devices, etc.), wildlife habits and biology, habitat management, exclusion, and animal behavior modification. In some cases, WS provides supplies or materials that are of limited availability for non-WS entities to use. Technical assistance may be provided following a personal or telephone consultation, or during an on-site visit with the requester. Generally, several management strategies are described to the requester for short and long-term solutions to damage problems; these strategies are based on the level of risk, need, and the practicality of their application. Technical assistance

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<sup>2</sup> The cost of management may sometimes be secondary because of overriding environmental, legal, human health and safety, animal welfare, or other concerns

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may require substantial effort by WS personnel in the decision making process, but the actual work is the responsibility of the requester.

Under APHIS NEPA Implementing regulations and specific guidance for the WS program, WS technical assistance is categorically excluded from the need to prepare an EA or EIS. However, it is discussed in this EA because it is an important component of the IWDM approach to resolving wildlife damage problems.

### 3.2.3 Direct Operational Damage Management Assistance.

This is the implementation or supervision of damage management activities by WS personnel. Direct damage management assistance may be initiated when the problem cannot effectively be resolved through technical assistance alone, and when Agreements for Control or other comparable instruments provide for WS direct damage management. The initial investigation defines the nature, history, extent of the problem, species responsible for the damage, and methods that would be available to resolve the problem. Professional skills of WS personnel are often required to effectively resolve problems, if the problem is complex.

### 3.2.4 Education

Education is an important element of WS's program activities because wildlife damage management is about finding "balance" or co-existence between the needs of people and needs of wildlife. This is extremely challenging as nature has no balance, but rather, is in continual flux. In addition to the routine dissemination of recommendations and information to individuals or organizations sustaining damage, lectures and demonstrations are provided to farmers, homeowners, and other interested groups. WS frequently cooperates with other agencies in education and public information efforts. Additionally, technical papers are presented at professional meetings and conferences so that WS personnel, other wildlife professionals, and the public are updated on recent developments in damage management technology, laws and regulations, and agency policies.

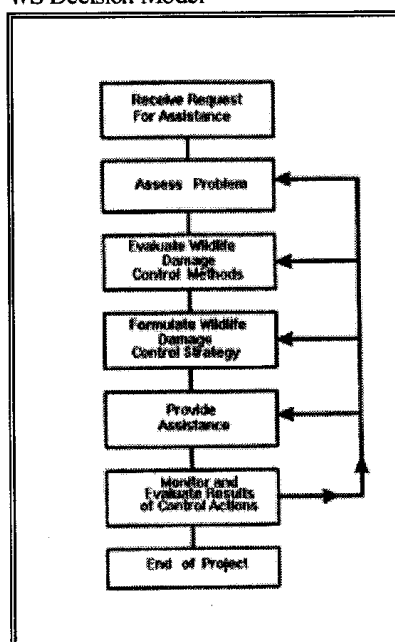
### 3.2.5 WS Decision Making

The procedures used by WS personnel to determine management strategies or methods applied to specific damage problems can be found in USDA 1997, Appendix N.

WS personnel use a methodical process for evaluating and responding to damage complaints and requests for assistance that are depicted by the WS Decision Model described by Slate et al. (1992) (Figure 3-1). WS personnel are frequently contacted after requesters have tried or considered nonlethal methods and found them to be impractical, too costly, or inadequate for reducing damage to an acceptable level. WS personnel assess the problem and evaluate the appropriateness and availability (legal and administrative) of strategies and methods based on biological, economic and social

considerations. Following this evaluation, the methods deemed to be practical for the situation are developed into a management strategy. After the management strategy has been implemented, monitoring is conducted and evaluation continues to assess the effectiveness of the strategy. If the strategy is effective, the need for further management may be ended. In some cases, continual conduct of effective wildlife damage management activities is necessary to relieve damage. In terms of the WS Decision Model (Slate et al. 1992), most damage management efforts consist of continuous feedback between receiving the request and monitoring the results of the ongoing damage management strategy. The Decision Model is not necessarily a written process, but a mental problem-solving process common to most, if not all professions.

Figure 3-1  
WS Decision Model



### 3.2.6 Community-based Selection of a Deer Damage Management Program

Technical assistance provided by WS to resource owners for selection of a deer damage management program. The WS program in New York follows the “Co-managerial approach” to solve wildlife damage or conflicts as described by Decker and Chase (1997). Within this management model, WS provides technical assistance regarding the biology and ecology of white-tailed deer and effective, practical, and reasonable methods available to reduce deer damage to local requesters. This includes non-lethal and lethal methods. WS and other state and federal wildlife or wildlife damage management agencies may facilitate discussions at local community meetings when resources are available. Resource owners/managers and others directly affected by deer damage or



conflicts in New York have direct input into the resolution of such problems. They may implement management recommendations provided by WS or others, or may request management assistance from WS, other wildlife management agencies, local animal control agencies, or private businesses or organizations. Local authorities decide which methods should be used to solve a wildlife/human conflict. These decision makers include community leaders, private property owners/managers, and public property owners/managers.

Community selection of a deer damage management program. The authority that selects damage management actions for the local community might be a mayor, city council, common council, park board, or for a homeowner or civic association would be the President or the President's or Board's appointee. These individuals are often times popularly elected residents of the local community who oversee the interests and business of the local community. These individuals would represent the local community's interest and make decisions for the local community or bring information back to a higher authority or the community for discussion and decision making. Identifying the authority that selects damage management actions for local business communities is more complex because the lease may not indicate whether the business must manage wildlife damage themselves, or seek approval to manage wildlife from the property owner or manager, or from a governing board. WS would provide technical assistance to the local community or local business community authority(ies) and recommendations to reduce damage. Direct damage management would be provided by WS if requested by the local community authority, funding was provided, and the requested direct damage management was consistent with WS recommendations, policy and federal and state laws.

Private property selection of a deer damage management program. When one person privately owns a parcel of property, the authority selecting the damage management plan would be him or herself. WS would provide technical assistance and recommendations to this person to reduce damage. If multiple property owners are affected and no homeowner or civic association represents the affected resource owners of the local community, then WS would provide technical assistance to the self or locally appointed authority(ies). Direct damage management would be provided by WS if requested, funding was provided, and the requested direct damage management was consistent with WS recommendations, policy and federal and state laws. Additionally, a minimum of 67% of the affected resource owners must agree to the direct damage management. The affected resource owners would include those receiving damage and those whose property is adjacent to the areas where the deer primarily inhabit or damage resources. Affected resource owners who disagree with the direct damage management may request WS not conduct this action on their property and WS will honor this request.

Public property selection of a deer damage management program. The authority selecting the damage management plan for local, state, or federal property would be the official responsible for or authorized to manage the public land to meet interests, goals and legal mandates for the property. WS would provide technical assistance and recommendations

to this person to reduce damage. WS would provide direct damage management if it was requested, funding was provided, and the requested direct damage management was consistent with WS recommendations, policy, and federal and state laws.

Summary for community selection of a deer damage management program. This process for involving local communities and local stakeholders in the decisions for deer damage management assures that local concerns are considered before individual damage management actions are taken.

### **3.3 Wildlife Damage Management Methods Recommended or Authorized for Use**

USDA (1997, Appendix J) describes methods currently used by the WS program. Several of these were considered in this assessment because of their potential use in reducing deer damage to agriculture, property, natural resources, and public health and safety. A listing and more detailed description of the methods used by New York WS for deer damage management is found in Appendix D of this EA

#### **3.3.1 Nonlethal Methods**

Resource management. This method involves managing existing resources to discourage or eliminate the attractiveness of an area to deer or to minimize the likelihood that there will be conflict. Examples of this method include changes in human behavior (e.g., restructuring peak landing and takeoff times to avoid periods of high deer presence), habitat modification, livestock management, and modifying crop cultural practices (e.g., reducing vegetative cover, forage crops, or using less palatable landscape plants).

Physical exclusion. Fencing, netting, or other barriers can limit deer access to a particular area. There are several types of fences that can inhibit deer access including: temporary electric, high tensile electric, woven wire, chain-link, and solid wall fencing.

Behavior modification. The proper and integrated use of harassment techniques including auditory scaring techniques (pyrotechnics, propane exploders, electronic distress sounds, sirens, etc.) and visual scaring techniques (mylar ribbon, balloons, effigies, flashing lights, etc.) could help reduce conflicts.

Repellents. Repellents fall under two categories, contact repellants and area repellants. Contact repellents are those repellents that are applied to vegetation to discourage deer from browsing. Area repellents are designed to repel deer by odor alone.

#### **3.3.2 Lethal Methods**

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Sharpshooting. This method requires selectively shooting deer from tree stands, vehicles, or vantage points.

Live-capture and euthanasia. In some areas sharpshooting may be inappropriate due to safety concerns. Capture methods for deer include: darting with capture drugs, clover traps, box traps, drop nets, and rocket nets. Captured deer would be euthanized by methods recommended by the AVMA (Beaver et al. 2001) or per the recommendations of a veterinarian.

Hunting programs. WS may recommend the use of state regulated firearm and archery deer hunting programs to reduce deer damage in a local areas.

### **3.4 Alternatives Considered But Not Analyzed in Detail With Rational**

#### **3.4.1 Live Trapping and Relocation**

Under this alternative WS would capture deer alive using cage-type live traps or capture drugs administered by dart gun and then relocate the captured deer to another area. Numerous studies have shown that live-capture and relocation of deer is relatively expensive, time-consuming and inefficient (Ishmael and Rongstad 1984, O'Bryan and McCullough 1985, Diehl 1988, Jones and Witham 1990, Ishmael et al. 1995). Population reduction achieved through capture and relocation is labor intensive and would be costly (\$273-\$2,876/deer) (O'Bryan and McCullough 1985, Bryant and Ishmael 1991). Additionally, relocation frequently results in high mortality rates for deer (Cromwell et al. 1999, O'Bryan and McCullough 1985, Jones and Witham 1990, Ishmael et al. 1995). Deer frequently experience physiological trauma during capture and transportation, (capture myopathy) and deer mortality after relocation, from a wide range of causes within the first year, has ranged from 25-89% (Jones and Witham 1990, Mayer et al. 1993). O'Bryan and McCullough (1985) found that only 15% of radio-collared black-tailed deer that were live-captured and relocated from Angel Island, California, survived for one year after relocation. Although relocated deer usually do not return to their location of capture, some do settle in familiar suburban habitats and create nuisance problems for those communities (Bryant and Ishmael 1991). High mortality rates of relocated deer, combined with the manner in which many of these animals die, make it difficult to justify relocation as a humane alternative to lethal removal methods (Bryant and Ishmael 1991). Chemical Capture methods require specialized training and skill. A primary limitation of darting, the limited range at which deer can be effectively hit, is generally less than 40 yards. With modern scoped rifles, however, a skilled sharpshooter can hit the head or neck of a deer for a quick kill out to 200 yards and beyond. Thus, chemical capture is far less efficient, more labor intensive, and much more costly than lethal removal with rifles

Translocation of wildlife is discouraged by WS policy (WS Directive 2.501) because of stress to the relocated animal, poor survival rates, potential for disease transfer and difficulties in adapting to new locations or habitats. Also many states no longer permit the interstate transfer of deer due to recent concerns of chronic wasting disease outbreaks (section 1.3.6, page 9). If CWD is already present in New York, relocating deer within the state could serve to vector the disease.

### 3.4.2 Population stabilization through birth control

Deer would be sterilized or contraceptives administered to limit the ability of deer to produce offspring. Contraceptive measures for deer can be grouped into four categories: surgical sterilization, oral contraception, hormone implantation, and immunocontraception (the use of contraceptive vaccines). Sterilization could be accomplished through surgical sterilization (vasectomy, castration, and tubal ligation), chemosterilization, and gene therapy. Contraception could be accomplished through hormone implantation (synthetic steroids such as progestins), immunocontraception (contraceptive vaccines), and oral contraception (progestin administered daily). These techniques would require that deer receive either single, multiple, or possibly daily treatment to successfully prevent conception.

Use and effectiveness of reproductive control as a wildlife population management tool is limited by population dynamic characteristics (longevity, age at onset of reproduction, population size and biological/cultural carrying capacity, etc.), habitat and environmental factors (isolation of target population, cover types and access to target individuals, etc.), socioeconomic and other factors. Population modeling indicates that reproductive control is more efficient than lethal control only for some rodent and small bird species with high reproductive rates and low survival rates (Dolbeer 1998). Additionally, the need to treat a sufficiently large number of target animals, multiple treatments, and population dynamics of free-ranging populations place considerable logistic and economic constraints on the adoption of reproduction control technologies as a wildlife management tool for some species. Research into reproductive control technologies, however, has been ongoing, and the approach will probably be considered in an increasing variety of wildlife management situations.

The use of this method would be subject to approval by Federal and State Agencies. This alternative was not considered in detail because:

- it would take a number of years of implementation before the deer population would decline and therefore, damage would continue at the present unacceptable levels for a number of years;
- surgical sterilization would have to be conducted by licensed veterinarians, and would therefore be extremely expensive;

- 
- it is difficult, time-consuming, and expensive to effectively live trap, chemically capture, or remotely treat the number of deer necessary to effect an eventual decline in the population; and
  - State and Federal regulatory authorities have approved no chemical or biological agent for use as a deer contraceptive.

### 3.5 Mitigation and Standard Operating Procedures for Wildlife Damage Management Techniques

Mitigation measures are any features of an action that serve to prevent, reduce, or compensate for impacts that otherwise might result from that action. The current WS program, nationwide and in New York, uses many such mitigation measures and these are discussed in detail in Chapter 5 of the FEIS (USDA 1997). Some key mitigating measures pertinent to the Preferred Alternative and alternatives that are incorporated into WS's Standard Operating Procedures are listed in the following table.

MITIGATION MEASURES	WS ALTERNATIVES				
	No Involve- ment	Tech. Asst.	Lethal	Nonlethal	IWDM: No Action (Preferred)
<b>Animal Welfare and Humaneness of Methods Used by WS</b>					
Research on selectivity and humaneness of management practices would be monitored and adopted as appropriate.			X	X	X
The Decision Model (Slate et al. 1992) is used to identify effective biological and ecologically sound deer damage management strategies and their impacts.			X	X	X
Euthanasia procedures approved by the AVMA that cause minimal pain are used for live animals.			X		X
The use of newly developed, proven nonlethal methods would be encouraged when appropriate.				X	X
<b>Safety Concerns Regarding WS Damage Management Methods</b>					
The Decision Model (Slate et al. 1992), designed to identify the most appropriate damage management strategies and their impacts, is used to determine deer damage management strategies.			X	X	X
<b>Concerns about Impacts of Damage Management on Target Species, T&amp;E Species, Species of Special Concern, and Non-target Species</b>					
WS consulted with the USFWS and NYSDEC regarding the nation-wide program and would continue to implement all applicable measures identified by the USFWS and NYSDEC to ensure protection of T&E species.			X	X	X
Management actions would be directed toward localized populations or groups and/or individual offending animals.			X	X	X
WS personnel are trained and experienced to select the most appropriate methods for taking targeted animals and excluding non-target species.			X	X	X
WS would initiate informal consultation with the USFWS following any incidental take of T&E species.			X		X
WS take is monitored by number of animals by species or species groups (i.e. blackbirds, raptors) with overall populations or trends in population to assure the magnitude of take is maintained below the level that would cause significant adverse impacts to the viability of native species populations (See Chapter 4).			X		X

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## **CHAPTER 4      CONSEQUENCES OF THE DEER MANAGEMENT PROGRAM**

This chapter provides information for making informed decisions on the deer damage management program outlined in Chapter 1, the issues and affected environments discussed in Chapter 2, and on cumulative impacts.

Impacts from this management plan may be unforeseen, cumulative, or unavoidable. Such effects are discussed in relationship to each of the wildlife species and the resulting environmental impacts are analyzed in this chapter. This EA recognizes that the total annual removal of individual animals from wildlife populations by all causes is the cumulative mortality. Analysis of the New York WS "takes" during 2001 and anticipated future WS takes, in combination with other mortality, indicates that cumulative impacts are not adversely affecting the viability and health of populations. It is not anticipated that the WS program would result in any adverse cumulative impacts to T&E species, and deer damage management activities do not jeopardize public health and safety.

### **4.1      Analysis of Social Consequences and Resource Use**

This section analyzes the environmental consequences using Alternative 5 as the no action alternative and therefore will be used as the baseline when comparing the other alternatives to determine if the real or potential impacts are greater, lesser or the same (Table 4-2). The No Action alternative is a procedural NEPA requirement (40 CFR 1502.14(d)) and is a viable and reasonable alternative that could be selected and serves as a baseline for comparison with the other alternatives. The No Action Alternative, as defined here, is consistent with the Council on Environmental Quality (CEQ) (1981).

#### **4.1.1      Social and Recreational Concerns**

These concerns are discussed throughout the document as they relate to issues raised during public involvement, and they are discussed in USDA (1997).

#### **4.1.2      Irreversible and Irretrievable Commitments of Resources:**

The following resource values within New York would not be adversely impacted by any of the alternatives analyzed: soils, geology, minerals, water quality/quantity, flood plains, wetlands, visual resources, air quality, prime and unique farmlands, aquatic resources, timber, and range. These resources will not be analyzed further.

Other than minor uses of fuels for motor vehicles and electrical energy for office maintenance, there are no irreversible or irretrievable commitments of resources. Based on these estimates, the New York WS program produces very negligible impacts on the supply of fossil fuels and electrical energy.

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## 4.2 Alternatives Analyzed by Potential Impacts

Six key potential impacts of this program have been identified, and each of these impacts is discussed for each alternative. The six impacts include: effects on white-tailed deer populations; effects on plants and other wildlife species, including T & E species; effects on human health and safety; humaneness of methods to be used; effects of aesthetic values, and effects on regulated white-tailed deer hunting.

### Alternative 1. No Deer Damage Management by WS

Effects on white-tailed deer populations. WS would conduct no deer damage management activities under this alternative. Local deer populations could decline, stay the same, or increase depending on actions taken by others. Some resource/property owners may kill deer, or allow other hunters access to hunt deer, during the hunting season. Resource/property owners may also obtain special permits from the NYSDEC to allow them to shoot deer outside of the hunting season and in those areas where sport hunting is not allowed. Deer populations could continue to increase where hunting pressure was low or when an insufficient number of deer are removed under special permits issued by NYSDEC. Some local populations of deer would temporarily decline or stabilize where hunting pressure and permitted removal activities were adequate. Some resource/property owners may take illegal, unsafe, or environmentally harmful action against local populations of deer out of frustration or ignorance. While WS would provide no assistance under this alternative, other individuals or entities could conduct lethal damage management resulting in impacts similar to the Preferred Alternative alternative.

Effects on plants and other wildlife species, including T & E species. In the absence of a WS deer damage management program some resource/property owners with little or no shooting experience may attempt to remove deer. These resource/property owners could be more likely than WS personnel to take a non-target species and not report non-target take.

Damage caused by deer to wildlife species, including T&E species, may continue or increase in those situations where the resource/property owner does not implement their own deer damage management program or in those situations where a resource/property owner does not have the resources or abilities to implement an effective deer damage management program.

Effects on human health and safety. Potential threats to human health and safety may continue or increase in those situations where the resource/property owner does not implement their own deer damage management program; or in those situations where a resource/property owner does not have the resources or abilities to implement an effective deer damage management program.



Inexperienced resource/property owners may attempt to solve deer damage problems through trapping and shooting. Therefore, there could be increased risks to human health and safety from improper or inexperienced use of damage management methods.

Humaneness of methods to be used. Many people would consider this alternative humane because WS would not be involved in management actions. However, resource/property owners could use lethal and non-lethal methods to reduce deer damage. Some resource/property owners may take illegal action against localized populations of deer out of frustration of continued damage. These illegal actions may be less humane than methods used by experienced WS personnel. The humaneness of actions implemented by non-WS would be variable dependent upon the person implementing the action.

Effects on aesthetic values. The impacts of this alternative to stakeholders would be variable depending on their values towards wildlife and compassion for their neighbors. Resource/property owners receiving damage from deer would likely strongly oppose this alternative because they would bear the damage caused by deer. Some individuals would prefer this alternative because they believe it is morally wrong to kill or use animals for any reason. Some people would support this alternative because they enjoy seeing deer, or having deer nearby. However, while WS would take no action under this alternative, other individuals or entities could, and likely would, conduct deer damage management activities resulting in impacts similar to Alternative 5.

Effects on regulated white-tailed deer hunting. WS would have no impact on regulated deer hunting. However, resource/property owners may remove deer under special permits issued by NYSDEC resulting in impacts similar to the Preferred Alternative.

## **Alternative 2. Technical Assistance Only**

Effects on white-tailed deer populations. No direct deer damage management activities would be conducted by WS under this alternative. Local deer populations could decline, stay the same, or increase depending on actions taken by others. Some resource/property owners may kill deer, or allow other hunters access to hunt deer, during the hunting season. Resource/property owners may obtain special permits from the NYSDEC to allow them to shoot deer outside of the hunting season and in those areas where sport hunting is not allowed. Deer populations could continue to increase where hunting pressure was low or when an insufficient number of deer are removed under special permits issued by NYSDEC. Some local populations of deer would temporarily decline or stabilize where hunting pressure and permitted removal activities were adequate. Some resource/property owners may take illegal, unsafe, or environmentally harmful action against local populations of deer out of frustration or ignorance, but would likely occur at a lower rate than Alternative 1 if WS advice is obtained and implemented. While WS would provide technical assistance under this alternative, other individuals or entities could conduct lethal damage management resulting in impacts similar to the preferred alternative.

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Effects on plants and other wildlife species, including T & E species. In the absence of an integrated deer damage management program some resource/property owners with little or no shooting experience may attempt to remove deer. These resource owners would be more likely than WS personnel to take a non-target species and not report non-target take, but would likely occur at a lower rate than Alternative 1 if WS advice is obtained and implemented.

Damage caused by deer to wildlife species, including T&E species, may continue or increase in those situations where the resource owner/property owner does not implement their own deer damage management program, does not have the resources or abilities to implement an effective deer damage management program, or does not seek and implement WS technical advise.

Effects on human health and safety. Potential threats to human health and safety may continue or increase in those situations where the resource/property owner does not implement their own deer damage management program; or in those situations where a resource/property owner does not have the resources or abilities to implement an effective deer damage management program. This increased threat would likely be less than Alternative 1 when WS recommendations are obtained and implemented.

Inexperienced resource/property owners may attempt to solve deer damage problems through trapping and shooting. Therefore, there could be increased risks to human health and safety from improper or inexperienced use of damage management methods. This increased risk would likely be less than Alternative 1 when WS recommendations are obtained and implemented.

Humaneness of methods to be used. Many people would consider this alternative humane because WS would not directly implement any deer control measures. Resource/property owners could use lethal and non-lethal methods recommended by WS to reduce deer damage or implement their own control methods without WS assistance. Some resource/property owners may take illegal action against localized populations of deer out of frustration of continued damage. Some of these illegal actions may be less humane than methods used by experienced WS personnel. The humaneness of actions implemented by non-WS would be variable dependent upon the person implementing the action.

Effects on aesthetic values. The impacts of this alternative to stakeholders would be variable depending on their values towards wildlife and compassion for their neighbors. Resource/property owners receiving damage from deer would likely strongly oppose this alternative because they would bear the damage caused by deer. Some individuals would prefer this alternative because they believe it is morally wrong to kill or use animals for any reason. Some people would support this alternative because they enjoy seeing deer, or having deer nearby. However, while WS would take no direct action under this

alternative, other individuals or entities could, and likely would, conduct deer damage management activities resulting in impacts similar to Alternative 5.

Effects on regulated white-tailed deer hunting. WS would have no direct impact on regulated deer hunting. However, resource/property owners may remove deer under special permits issued by NYSDEC resulting in impacts similar to the preferred alternative.

### **Alternative 3. Lethal Deer Damage Management Only by WS**

Effects on white-tailed deer populations. This alternative could result in a decrease in the deer population at the specific site where the damage management occurs. Even if WS lethally removed deer at all project sites, it is not anticipated that WS would kill more than 1000 deer annually. Therefore, the impacts on deer populations are expected to be similar to those described in the Preferred Alternative. New deer would likely re-inhabit the site as long as suitable habitat exists. The amount of time until new deer move into the area would vary depending on the habitat type, time of year, and population densities in the area.

Effects on plants and other wildlife species, including T & E species. WS impacts would be similar to those described in the preferred alternative, except in situations where lethal methods could not be used or are ineffective at reducing damage to acceptable levels. In these situations the impacts from this alternative would be similar to alternative 1.

Effects on human health and safety. The potential risks to human safety from use of lethal methods by WS would be similar to the Preferred Alternative. WS follows all firearm safety precautions when conducting damage management and complies with all laws and regulations governing the lawful use of firearms.

The reduction of deer induced human health and safety threats would be similar to those described under the Preferred Alternative, except in those situations where lethal methods could not be used or are ineffective at reducing damage to acceptable levels. In those situations impacts would be similar to alternative 1.

Humaneness of methods to be used. WS personnel are experienced and professional in their use of management methods. Methods are applied as humanely as possible. Under this alternative, deer would be killed as humanely as possible by experienced WS personnel using the most appropriate method available. Some individuals could perceive these methods as inhumane because they oppose all lethal methods of damage management. Overall impacts would be similar to the Preferred Alternative.

Effects on aesthetic values. The impacts of this alternative to stakeholders would be variable depending on their values towards wildlife and compassion for their neighbors. This alternative would likely be favored by resource owners who are receiving damage when lethal actions effectively reduces damage to acceptable levels, although, some

resource owners would be saddened if the deer were removed. Some individuals would strongly oppose this alternative because they believe it is morally wrong to kill or use animals for any reason or they believe the benefits from deer would outweigh the associated damage. The ability to view and aesthetically enjoy deer at a particular site could be limited if the deer are removed. The opportunity to view deer is available if a person makes the effort to visit sites with adequate habitat outside of the damage management area.

Effects on regulated white-tailed deer hunting. Shooting of deer by WS employees would only occur after a permit has been issued by the NYSDEC to remove deer that are causing damage or in those situations where deer are a potential human health and safety threat or are a threat of spreading diseases. This activity would result in reduced deer densities on project areas and may reduce densities in some project area deer management zones, hence slightly reducing the number of deer that may otherwise be available to hunters during hunting seasons. The impact of this, however, is expected to be minimal due to:

- a. the number of deer expected to be killed by WS is minimal when compared to the number taken by hunters in the zone(s) and
- b. the number of deer expected to be killed by WS would not cause a statewide deer population reduction.

There may be some cases, where landowners have not permitted regulated deer hunting, but would allow WS employees to shoot deer. This would have only a minimal impact on deer hunting, since the land was not previously accessible to hunters. Overall impacts would be similar to the Preferred Alternative alternative.

#### **Alternative 4. Non-lethal Deer Damage Management Only by WS**

Effects on white-tailed deer populations. WS would kill no deer under this alternative. Local deer populations could decline, stay the same, or increase depending on actions taken by others. Some resource/landowners owners may kill deer, or allow other hunters access to kill deer, during the legal hunting season. Resource/landowners owners may obtain special permits from the NYSDEC to shoot deer outside of the hunting season and in those areas where sport hunting is not allowed. Deer populations could continue to increase where hunting pressure was low or when an insufficient number of deer are removed under special permits issued by NYSDEC. Some local populations of deer would temporarily decline or stabilize where hunting and permitted removal activities were adequate. Some resource/landowners owners may take illegal, unsafe, or environmentally harmful action against local populations of deer out of frustration or ignorance. While WS could only provide non-lethal assistance under this alternative, other individuals or entities could conduct lethal damage management resulting in impacts similar to the Preferred Alternative alternative.

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Effects on plants and other wildlife species, including T & E species. In the absence of an integrated deer damage management program by WS that includes the option of lethal removal of deer from damage sites, some resource/landowners owners with little or no shooting experience may attempt to remove deer. These inexperienced resource/landowners owners would be more likely than WS personnel to take a non-target species and not report non-target take. WS take of nontarget species is expected to be minimal or nonexistent. The effects of WS use of non-lethal methods would be similar to those described under the Preferred Alternative.

WS impacts would be similar to those described in the preferred alternative, where nonlethal methods are effective at reducing damage to acceptable levels. When nonlethal methods are ineffective at reduce damage to acceptable levels and resource/landowners owners do not implement their own lethal control methods, damage caused by deer to wildlife species, including T&E species, may increase in those situations. In these situations impacts would be similar to alternative 1.

Effects on human health and safety. Concerns regarding WS use of lethal methods would be alleviated under this alternative. However, non-WS personnel would likely conduct lethal control actions that would not be available by WS resulting in impacts similar to alternative 1.

Non-lethal methods would not be efficient or successful in resolving many deer damage situations. There are potential for increased threats to public health and safety when nonlethal methods are ineffective and non-WS personnel do not effectively reduce local deer herds. Resource/landowners owners may attempt to lethally resolve deer damage problems through illegal use of chemicals/pesticides, trapping, and shooting. In these situations there may be some risk to human health and safety from improper or inexperienced use of these methods. The reduction of deer induced human health and safety threats would be similar to those described under the Preferred Alternative in those situations where nonlethal methods are effective at reducing damage to acceptable levels. In those situations where nonlethal methods are ineffective impacts would be similar to alternative 1.

Humaneness of methods to be used. WS personnel are experienced and professional in their use of management methods, and methods are applied as humanely as possible. Some individuals may perceive this approach as humane because they oppose all lethal methods of damage management. However, without effective damage management methods available, resource/landowners owners may take illegal action against some local populations of deer out of frustration of continued damage. Some of these illegal actions may be less humane than methods used by WS personnel. While WS could only provide non-lethal assistance under this alternative, other individuals or entities could conduct lethal damage management with impacts similar to alternative 1.

Effects on aesthetic values. The impacts of this alternative to stakeholders would be variable depending on the damage management efforts employed by resource/landowners

owners, their values toward deer and compassion for their neighbors. Resource/landowners owners who are receiving damage from deer would likely oppose this management alternative when nonlethal methods are ineffective. Some people would support this alternative because they believe resource owners would do little to remove deer. Others would oppose this alternative because they believe resource/landowners owners would use illegal, inhumane, or environmentally unsafe methods. While WS could only provide non-lethal assistance under this alternative, other individuals or entities could conduct lethal damage management resulting in impacts similar to Alternative 5.

Effects on regulated white-tailed deer hunting. WS would have no impact on regulated deer hunting since WS would not lethally remove deer under this alternative. However, resource/landowners owners may remove deer under special permits issued by NYSDEC resulting in impacts similar to the Preferred Alternative.

#### **Alternative 5. Integrated Deer Damage Management Program: No Action (Preferred Alternative)**

Effects on white-tailed deer populations. The current program removes only a small number of deer from the statewide New York population (<20 per year). However, based upon an anticipated increase of work, New York WS expects that no more than 1000 deer would be lethally removed annually, under permits issued by the NYSDEC, while conducting WS direct control activities within the state. Therefore, 1000 deer was used to analyze WS potential impacts to the statewide deer population in New York.

The authority for management of resident wildlife species is the responsibility of NYSDEC (Environmental Conservation Law of New York 2001 §11-0105 and 11-0303), and deer are classified as protected big game (Environmental Conservation Law of New York 2001 §11-0103). NYSDEC collects and compiles information on white-tailed deer population trends and take, and uses this information to manage deer populations. This information has been provided to WS to assist in the analysis of potential impacts of WS activities on the deer herd in New York.

The population of deer in New York is consistently increasing (Stickney 1983, NYSDEC 2001). Currently, NYSDEC estimates that there are about one million deer in New York (Ed Kautz, NYSDEC, personal communication). The pre-hunt population is estimated from kill estimates and their age and sex distributions.

The ADC FEIS (USDA 1997) determined, using qualitative information (population trend indicators and harvest data), that if WS deer kill is less than or equal to 33.0% of the total deer harvest (2000 total deer harvest = 295,859), the magnitude is considered low. Magnitude is defined as a measure of the number of animals killed in relation to their abundance. Using the harvest data and the annual take of 1000 deer by WS, the magnitude is considered extremely low for WS take of deer in New York. Thus, cumulative take appears to be far beneath the level that would begin to cause a decline in

the deer population. NYSDEC biologists have concurred with WS's finding that WS deer damage management activities will have no adverse effect on statewide deer populations (J. Major, NYSDEC, personal communication).

Effects on plants and other wildlife species, including T & E species. In New York, WS has conferred with the Department of Environmental conservation, which has determined that the proposed WS action will not likely adversely effect NY State Endangered or Threatened species or their habitats and ecosystems (P. Nye, personal communication 10 July 2002). NYSDEC has provided WS a list of Endangered, Threatened and Special Concern species in New York State. WS will periodically consult with the DEC Bureau of Wildlife and Endangered Species Unit to ensure that no actions taken under this plan will adversely affect NY listed species. WS could benefit NY State listed species by reducing deer browsing damage to listed plant species and to habitats of listed animal species.

Nationally, WS has consulted with the USFWS regarding potential impacts of control methods on T&E species, and abides by reasonable and prudent alternatives (RPAs) and/or reasonable and prudent measures (RPMs) established as a result of that consultation. For the full context of the Biological Opinion see the ADC FEIS, (USDA 1997, Appendix F). Further consultation on species not covered by or included in that formal consultation process has been initiated with the USFWS and WS will abide by any RPAs, RPMs, and terms and conditions that result from that process to avoid jeopardizing any listed species. The USFWS office has provided WS a list of Federal T&E species in NY counties. WS has determined that the proposed WS actions will not likely adversely affect Federal T&E species or their critical habitats in NY. This determination is based upon the conclusions that deer damage management methods would not adversely impact any federally listed T&E species but could benefit T&E species by reducing deer browsing damage to listed plant species and to habitat that is being used by T&E species.

Effects on human health and safety. WS's methods of shooting and trapping pose minimal or no threat to human health and safety. WS follows firearm safety precautions when conducting damage management and WS complies with all laws and regulations governing the lawful use of firearms. Shooting with shotguns or rifles is used to reduce deer damage when lethal methods are determined to be appropriate. WS could use firearms to euthanize deer captured in live traps. WS' traps are strategically placed to minimize exposure to the public and pets. Appropriate signs are posted on all properties where traps are set to alert the public of their presence.

The use of firearms can be a politically sensitive issue because of the occasional carelessness and misuse of firearms by people. To ensure safe use and awareness, WS employees who use firearms to conduct official duties are required to attend an approved firearms safety-and-use training program within three months of their appointment and a refresher course every two years afterwards (WS Directive 2.615). WS employees, who

use firearms as a condition of employment, are required to certify that they meet the criteria as stated in the *Lautenberg Amendment*.

This alternative would have the greatest potential to reduce threats to public health and safety from a site by alleviating potential threats of transmitting diseases, and potential deer/aircraft and deer/vehicle collisions since all available lethal and nonlethal methods could be considered for use or recommended.

Humaneness of methods to be used. WS personnel are experienced and professional in their use of management methods, and methods are applied as humanely as possible. Under this alternative, deer would be shot or trapped as humanely as possible by experienced WS personnel using the best method available. Deer live-captured in traps would be euthanized. Some individuals may not perceive this method as humane because they oppose all lethal methods of damage management. However, this alternative allows WS to consider non-lethal methods, and WS would implement non-lethal methods for deer damage management when appropriate.

Effects on aesthetic values. The impacts of this alternative to stakeholders would be variable depending on their values towards wildlife and compassion for their neighbors. Most resource owners who are incurring damage would likely favor this alternative as it allows for an IWDM approach to resolving damage problems. The proposed IWDM approach allows for the use of the most appropriate damage management methods. Most stakeholders without damage would also prefer this alternative to Alternative 3, where all deer are killed, because non-lethal methods could be appropriate to resolve damage problems in some situations. Some individuals would strongly oppose this alternative, and most action alternatives, because they believe it is morally wrong to kill or use animals for any reason or they believe that the benefits from deer outweigh the associated damage.

The ability to view and aesthetically enjoy deer at a particular site could be limited if the deer are removed. New deer, however, would likely use the site in the future, although the length of time until new animals arrive is variable, depending on the habitat, time of year, and population densities in the area. The opportunity to view deer is available if a person makes the effort to visit sites with adequate habitat outside of the damage management area.

Public reaction would be variable and mixed because there are numerous philosophical, aesthetic, and personal attitudes, values, and opinions about the best ways to reduce conflicts/problems between humans and wildlife. An IWDM approach, which includes non-lethal and lethal methods, provides relief from damage or threats to human health or safety to those people who would have no relief from such damage or threats if non-lethal methods were ineffective or impractical. Many people directly affected by problems and threats to human health or safety caused by deer insist upon their removal from the property or public location when the wildlife acceptance capacity is reached or exceeded. Some people will have the opinion that deer should be captured and relocated to a rural



area to alleviate damage or threats to human health or safety. Some people would strongly oppose removal of the deer regardless of the amount of damage. Individuals not directly affected by the threats or damage may be supportive, neutral, or totally opposed to any removal of deer from specific locations or sites. Some people that totally oppose lethal damage management want WS to teach tolerance for deer damage and threats to public health or safety, and that deer should never be killed.

Effects on regulated white-tailed deer hunting. Shooting of deer by WS personnel would only occur after a permit has been issued by the NYSDEC to remove deer that are causing damage or in those situations where deer are a potential human health and safety threat or are a threat of spreading diseases. This activity would result in reduced deer densities on project areas and may reduce densities in some project area deer management zones, hence slightly reducing the number of deer that may otherwise be available to hunters during hunting seasons. The impact of this activity, however, is expected to be minimal due to:

- a. the number of deer expected to be killed by WS is minimal when compared to the number taken by hunters in the zone(s) and
- b. the number of deer expected to be killed by WS would not cause a statewide reduction in deer populations.

There may be some cases, where landowners have not permitted regulated deer hunting, but would allow WS employees to shoot deer. This would have a minimal impact on deer hunting, since the land was not previously accessible to hunters.

### **4.3 Cumulative Impacts**

No significant cumulative environmental impacts are expected from any of the 5 alternatives. Under the Preferred Alternative and Alternative 3, the lethal removal of deer would not have a significant impact on overall deer populations in New York, but some local reductions may occur. This is supported by the NYSDEC, which is the agency with responsibility for managing wildlife in the State. No risk to public safety is expected when WS' services are provided and accepted by requesting individuals in Alternatives 2, 3, 4, and 5 since only trained and experienced wildlife biologists would conduct and recommend deer damage management activities. There is a slight increased risk to public safety when a person rejects WS assistance and recommendations in Alternatives 2, 3, 4, and 5. Although some persons will likely be opposed to WS' participation in deer damage management activities, the analysis in this EA indicates that WS IWDM program will not result in significant, cumulative, adverse impacts on the quality of the human environment.

Table 4.2 Comparisons of Issues/Impacts and Alternatives

<i>Issues/Impacts</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>Alternative 4</i>	<i>Alternative 5</i>
<b>Effects on white-tailed deer populations</b>	WS would not affect population. If resource owner conducts deer management, effect would be similar to Alternative 5.	WS would not affect population. If resource owner conducts deer management, effect would be similar to Alternative 5.	Local population would be reduced and sustained at a lower level. No effect on statewide deer population.	WS would not affect population. If resource owner conducts deer management, effect would be similar to Alternative 5.	Local population would be reduced and sustained at a lower level. No effect on statewide deer population.
<b>Effects on plants and other wildlife species, including T&amp;E species</b>	No impact by WS. Positive impact to those species that are being negatively impacted by deer if resource owner implements damage reduction program.	No impact by WS. Positive impact to those species that are being negatively impacted by deer if resource owner implements damage reduction program.	No adverse impacts by WS. Positive impact to those species that are being negatively impacted by deer if lethal methods are effective.	No adverse impacts by WS. Positive impact to those species that are being negatively impacted by deer if nonlethal methods are effective.	No adverse impacts by WS. Positive impact to those species that are being negatively impacted by deer.
<b>Effects on human health and safety</b>	No impact by WS. If resource owners conduct deer damage management, effect would be variable.	No impact by WS. If resource owners conduct deer damage management, effect would be variable.	No adverse impact by WS. Slight positive effect from reduced deer strikes and disease transmission if lethal methods are effective.	No adverse impact by WS. Slight positive effect from reduced deer strikes and disease transmission if nonlethal methods are effective.	No adverse impact by WS. Positive effect from reduced deer strikes and disease transmission.
<b>Humaneness of methods to be used</b>	Most would view as humane. If resource owners conduct deer management activities, effects would be variable.	Most would view as humane. If resource owners conduct deer management activities, effects would be variable.	Effects would be variable. Some would view as inhumane.	Most would view as humane. If resource owners conduct lethal deer management activities, effects would be variable.	Effects would be variable. Some would view as inhumane.

<i>Issues/Impacts</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>Alternative 4</i>	<i>Alternative 5</i>
<b>Effects on aesthetic values</b>	Population would remain the same or increase. Increased opportunity to view deer. If resource owner conducts deer damage management activities, effects would be similar to Alternative 5.	Population would remain the same or increase. Increased opportunity to view deer. If resource owner conducts deer damage management activities, effects would be similar to Alternative 5.	Local population would be reduced, less opportunity to view deer. Possible reduction in damage if WS lethal actions effective.	WS would not affect population. Possible reduction in damage if WS nonlethal actions effective. If resource owners conduct lethal deer damage management activities, effect would be similar to Alternative 5.	Local population would be reduced, less opportunity to view deer. Damage would be reduced.
<b>Effects on regulated white-tailed deer hunting</b>	No effect by WS. Slight reduction in the number of deer that may otherwise be available to hunters during hunting seasons if resource owner implements lethal control methods.	No effect by WS. Slight reduction in the number of deer that may otherwise be available to hunters during hunting seasons if resource owner implements lethal control methods.	Slight reduction in the number of deer that may otherwise be available to hunters during hunting seasons	No effect by WS. Slight reduction in the number of deer that may otherwise be available to hunters during hunting seasons if resource owner implements lethal control methods.	Slight reduction in the number of deer that may otherwise be available to hunters during hunting seasons

## **APPENDIX A**

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## **APPENDIX B**

### **Type of Deer Damage by Year in New York State**

Type of Deer Damage by Year  
New York State

Type of Complaint	1997	1998	1999	2000	Total
Truck Farm	215	241	257	340	1053
Corn	173	206	303	343	1025
Forage	184	181	274	378	1017
Orchard	175	163	207	221	766
Ornamental	84	106	131	185	506
Nursery	74	80	87	123	364
Beans	49	74	91	129	343
Grain	41	58	106	136	341
Home Garden	52	64	67	61	244
Vineyard	37	55	61	83	236
Other	32	78	67	47	224
Christmas Trees	37	52	55	64	208
Community Garden	11	12	17	21	61
Total	1164	1370	1723	2131	6388

## **APPENDIX C**

### **Environmental conservation Law of New York**

**§ 11-0105**

**24**

**§ 11-0305**

§26. "Muzzle loading firearm" means a gun which is loaded through the muzzle, shooting a single projectile and having a minimum bore of .44 inch. ©(1998, *chgd. by chap. 220, eff. 7/7/98.*)

27. "Leashed tracking dog" means a leashed dog which has been certified by the department pursuant to section 11-0928 of this chapter to track and find wounded or injured big game.

†28. "Captive bred" means born in captivity. †(1990, *added by chap. 326, eff. 1/1/91.*)

§29. "Non-native big game mammal" means a mammal species presently found in the wild and hunted as big game that is:

a. Native or an original inhabitant of the continents of Africa, Asia, South America, Australia, or Europe, whether or not captive bred; or

b. A captive bred North American big game mammal including: cougar, wolf, bear, bison, big horn sheep, mountain goat, antelope, elk, musk ox, mule deer, black tailed deer, caribou, swine, and a domestic game animal as defined in paragraph b of subdivision four of this section, provided, however, that nothing herein shall be deemed to expand, diminish, or alter the department's authority under existing statute or regulation to regulate the taking of big game as defined in paragraph b of subdivision two of this section or other protected wildlife as defined in paragraph c of subdivision six of this section.

§30. "Facility" means any type of zoo, petting zoo, circus, game farm, game preserve, or similar entity, or part thereof, where non-native big game mammals are housed, held, fed or provided for in any manner.

©(1999, *added by chap. 208, eff. 11/1/99.*)

#### §11-0105. State ownership and control.

The State of New York owns all fish, game, wildlife, shellfish, crustacea and protected insects in the state, except those legally acquired and held in private ownership. Any person who kills, takes or possesses such fish, game, wildlife, shellfish, crustacea or protected insects thereby consents that title thereto shall remain in the state for the purpose of regulating and controlling their use and disposition.

#### §11-0107. Application of Fish and Wildlife Law.

1. No person shall, at any time of the year, pursue, take, wound or kill in any manner, number or quantity, any fish protected by law, game, protected wildlife, shellfish, harbor seals, crustacea protected by law, or protected insects, except as permitted by the Fish and Wildlife Law.

2. No person shall, at any time of the year, buy, sell, offer or expose for sale, transport, or have in his possession any fish protected by law, game, protected wildlife, shellfish, harbor seals, crustacea protected by law, or part thereof, or protected insect, whether taken within the state or coming from without the state, except as permitted by the Fish and Wildlife Law.

#### §11-0109. Standard Time of the state.

Provisions of the Fish and Wildlife Law, or regulations of the department pursuant thereto, stating the periods of the day during which fish, game or wildlife may be taken shall be construed as referring to the Standard Time of the state as defined in section 52 of the General

the undertaking and execution of reciprocal and cooperative arrangements with the government of the United States, with other states, and with other departments and agencies of this state, political subdivisions and public corporations of this state and owners and lessees of privately owned lands and waters, and shall also include continuation of research and educational programs.

2. To such extent as it shall deem feasible without prejudice to other functions in the management of fish and wildlife resources of the state and the execution of other duties imposed by law, the department is directed, in the exercise of the powers conferred upon it, to develop and carry out programs and procedures which will in its judgment, (a) promote natural propagation and maintenance of desirable species in ecological balance, and (b) lead to the observance of sound management practices for such propagation and maintenance on lands and waters of the state, whether owned by the state or by a public corporation of the state or held in private ownership, having regard to (1) ecological factors, including the need for restoration and improvement of natural habitat and the importance of ecological balance in maintaining natural resources; (2) the compatibility of production and harvesting of fish and wildlife crops with other necessary or desirable land uses; (3) the importance of fish and wildlife resources for recreational purposes; (4) requirements for public safety; and (5) the need for adequate protection of private premises and of the persons and property of occupants thereof against abuse of privileges of access to such premises for hunting, fishing or trapping.

❖3. Notwithstanding any other provision of law, until December thirty-one, two thousand three, the department may adopt regulations prescribing possession, transportation, identification and sale of striped bass. Such regulations shall be consistent with the objectives of the interstate fisheries management plan for the striped bass adopted by the Atlantic States Marine Fisheries Commission. ❖(1994, *chgd. by chap. 365*; 2000, *chgd. by chap. 28, eff. on and after 12/31/99.*)

#### **§11-0305. General powers and duties of the department.**

In addition to the powers and duties provided in other sections of the Fish and Wildlife Law, the department shall have the following powers and duties:

1. To sell or furnish trees, shrubs and other plants to owners or lessees of private lands situated in the state on such terms as it deems to be for the public benefit;

❖2. To issue the licenses and permits provided for by law, to fix their terms, and the fees therefor, when no statutory provision is made, to designate agents to sell and promote the sale of licenses, to adopt procedures for the issuance of licenses, to establish the design and format of licenses and the information to be contained thereon, to provide where it deems appropriate for tags and buttons, to adopt license conditions respecting tagging or identifying fish and wildlife being possessed or transported, to establish procedures and requirements for reporting license sales and handling and remittance of license revenues by persons or entities issuing such licenses, to provide for acceptable methods of payment of license fees, and to revoke licenses and permits

as provided by law; ♦(2000, *chgd. by chap. 61(D), eff. on and after 4/1/2000.*)

3. To regulate the taking of fish in any manner other than angling, except as to migratory fish of the sea within the marine district;

4. To increase by regulation the size, as established by statute, of mesh of nets that may be used for taking fish;

5. To declare by regulation that waters, specified in the regulation, are not inhabited by trout, whenever it shall determine that the waters specified in the regulation, previously inhabited by trout, are no longer so inhabited, or shall determine that the waters specified in the regulation are unsuitable for trout;

6. To control, manage, propagate and distribute, and to regulate the transportation, importation and exportation of shellfish, cephalopoda and crustacea;

7. To regulate the examination and inspection of shellfish grounds, boats used in taking and buildings used for storage of shellfish, the handling and shipment of shellfish, the floating of shellfish, the removal of shellfish from unsanitary beds and their deposit on unpolluted grounds;

8. To enforce all laws relating to lands under water which have been or shall be designated, surveyed and mapped out pursuant to law as oyster beds or shellfish grounds and to grant leases of such lands, belonging to the state, for shellfish culture, according to law;

9. To conduct, manage and control all hatching and biological stations, game farms, game refuges, rearing stations and public hunting and fishing grounds owned or operated by the state;

10. To enforce all provisions of the Fish and Wildlife Law and regulations pursuant thereto, and all laws relating to fish, wildlife, protected insects, shellfish, crustacea and game;

11. To settle or compromise in its discretion any action or cause of action to recover a penalty under the provisions of this chapter as it may deem advantageous to the state;

12. To grant refunds of moneys erroneously received by the department, within two years of receipt thereof and upon satisfactory proof of entitlement, which refunds, upon approval of the commissioner and audit by the State Comptroller, shall be paid from any moneys available to the department in the Conservation fund.

13. Notwithstanding any other provision of law, to provide, by rule and regulation, for the issuance of not to exceed ten free combined hunting, fishing and big game licenses per year, valid for the life of the holder, to selected applicants for hunting, fishing, big game, combined hunting and fishing, combined hunting, fishing and big game and combined hunting and big game licenses who, on their application for such license, have elected to contribute one dollar to the conservation fund.

14. Notwithstanding any other provision of law, to regulate the possession, transportation, sale, barter and purchase of Pacific salmon and parts thereof; and to require permits or otherwise regulate the sale, barter and purchase of raw or unprocessed Pacific salmon eggs.

①5. Notwithstanding any inconsistent provision of law, the commissioner may designate no more than two days in each year that shall be

effective in every administrative region of the department, as free sport fishing days during which any person may, without having a sport fishing license and without the payment of any fee, exercise the privileges of a holder of a sport fishing license, subject to all of the limitations, restrictions, conditions, laws, rules and regulations applicable to the holder of a sport fishing license. Free sport fishing days shall be designated in a manner determined by the department to best provide public notice thereof and to maximize public participation therein, so as to promote the recreational opportunities afforded by sport fishing. *®(1996, chgd. by chap. 292, eff. 7/10/96.)*

®16. To identify, manage and conserve plants, animals and ecological communities that are rare in New York state, located on state-owned lands under the jurisdiction of the department. *®(1993, added by chap. 554, eff. 7/28/93.)*

®17. Notwithstanding any inconsistent provision of law, to authorize no more than four free sport fishing clinics in each year for each separate administrative region of the department, provided however that nothing in this subdivision shall preclude the department from conducting additional free sport fishing clinics during free sport fishing days designated by the commissioner pursuant to subdivision fifteen of this section. A free sport fishing clinic shall include, but not be limited to, instruction provided by employees of the department in recreational angling, including its benefits and values, and may also include instruction and other information relevant to an understanding of fisheries management, ethics and aquatic ecology and habitat. No license is required to take fish by angling while participating in a fishing clinic conducted by the department that has been designated by the commissioner as a free sport fishing clinic. Such clinics shall be implemented in a manner determined by the department to best provide public notice thereof and to maximize public participation therein, so as to promote the recreational opportunities afforded by sport fishing. *®(1996, added by chap. 292, eff. 7/10/96.)*

**§11-0306. The Hudson River estuary management program.**

1. There is established a Hudson River estuarine district which shall include the tidal waters of the Hudson river including the tidal waters of its tributaries and wetlands from the federal lock and dam at Troy to the Verrazano-Narrows.

2. The department shall establish a Hudson River estuary management program for the Hudson river estuarine district and associated shorelands, with consideration to the remainder of the Hudson River, New York bight, and the waters around Long Island only as they impact the Hudson River estuary, in order to protect, preserve and, where possible, restore and enhance the Hudson River estuarine district.

3. The commissioner shall appoint a Hudson River estuary management advisory committee with whom he or she shall consult on regulatory, policy and other matters affecting the management, protec-



## **APPENDIX D**

### **Recommended Methods**

**WHITE-TAILED DEER DAMAGE MANAGEMENT METHODS  
RECOMMENDED OR AUTHORIZED FOR USE  
BY THE  
NEW YORK WILDLIFE SERVICES PROGRAM**

***NONLETHAL METHODS***

***Resource Management***

These consist primarily of non-lethal preventive methods such as cultural methods and habitat modification. Resource owner/manager implements cultural methods and other management techniques. Resource owners/managers may be encouraged to use these methods, based on the level of risk, need, and professional judgment on their effectiveness and practicality. These methods include:

Changes in human behavior. These may include altering the flight times of departures and arrivals times so that flying is at a time period of low wildlife activity. Restricting flying during certain times of the day or restricting departures and arrivals on specific runways.

Habitat modification. Environmental/Habitat Modification can be an integral part of WDM. Wildlife production and/or presence are directly related to the type, quality and quantity of suitable habitat. Therefore, habitat can be managed to reduce or eliminate the production or attraction of certain wildlife species. The resource/property owner is responsible for implementing habitat modifications, and WS only provides advice on the type of modifications that have the best chance of achieving the desired effect. Habitat management is most often a primary component of WDM strategies at or near airports to reduce problems by eliminating loafing, bedding and feeding sites. Generally, many problems on airport properties can be minimized through management of vegetation and water on areas adjacent to aircraft runways.

Livestock management. Modifying or eliminating habitat utilized by deer may change deer behavior and reduce some deer-human conflicts. This could include reducing vegetative cover and forage plants used or preferred by deer. One method, to eliminate habitat, is using cattle to consume the biomass that deer and other wildlife would feed upon. Reardon and Merrill report that continuous heavy grazing by cattle or by mixed classes of livestock eliminated preferred deer foods and adversely impacts other aspects of whitetail habitat. (Reardon and Merrill 1976, Merrill et al. 1957, Merrill 1959) Crawford noted that livestock grazing affects the vigor and composition of plants and the direction and rapidity of plant succession. Thus, it can significantly influence carrying capacity of white-tailed deer habit (Crawford 1984).

Cultural practices. Studies in agriculture areas of Missouri indicate cultivated crops comprised 41 percent of deer diet by volume. (Beringer J. and Hansen L. P. 1997). Thus, by reducing the amount of crops adjacent to the airports runways, deer densities next to

these areas may decrease. For example, brome grass could be chosen to replace row crops, as brome is not a highly preferred plant species by deer, relative to other row crops, alfalfa and clover and still provides the owner with a source of revenue.

### ***Physical Exclusion***

A fence can limit the entry of deer onto affected properties. There are several types of fences that inhibit the movement of deer if properly installed, including electric fencing, woven wire, and chain link fencing. The height of a fence required to exclude deer is a very debated topic. Smith and Coggin (1984) reported that a 7-foot fence (2.1-meters) reduced deer-vehicle collisions by 44.3 to 83.9 percent along a New York Thruway. A USDA WS Biologist at O'Hare International Airport witnessed a deer jump, from a parallel embankment, the airport's 10-foot fence topped with two feet of serpentine wire (Mark Jensen, WS, Oregon, personal communication). Clearly and Dolbeer (1999) recommend that airports install a 10-foot chain link fence with barbed-wire outriggers to limit deer entry. For the purpose of this EA, WS recommends a fence height of 12 feet, with an additional three feet buried below the ground, to exclude deer.

### ***Behavior Modification***

This refers to tactics that alter the behavior of wildlife to reduce damage. Effective behavior modification usually requires integrating two or more auditory scaring or visual scaring techniques.

#### ***Auditory scaring techniques***

The proper use of frightening devices and harassment techniques including sirens, flashing lights, electronic distress sounds, pyrotechnics, propane exploders, dogs, and rubber projectiles fired from a shotgun could help reduce conflicts (Craven and Hygnstrom 1994). Used in the proper context, these devices can help keep deer away from conflict areas. Some disadvantages are that these methods can be labor intensive and expensive. Also, frightening methods must be continued indefinitely unless the deer population is reduced or excluded from the resource.

Pyrotechnics. Pyrotechnics are specialized fireworks that are shot out of a 12-gauge shotgun or starters pistol to deter deer or other wildlife. To be successful, pyrotechnics should be carried by wildlife control personnel at all times and used whenever the situation warrants. Continued use of pyrotechnics, alone may lessen the effectiveness.

Propane Cannons. Propane cannons are mechanical devices that use propane gas and an igniter to produce a loud explosive sound. Propane cannons are often suggested as effective frightening agents for deer (Craven and Hygnstrom 1994), and have been used frequently in attempts to reduce crop damage and encroachment on airports. Research has shown that propane cannons detonated systematically at 8-10 minute intervals are effective in frightening deer away from protected areas for two days. Motion-activated cannons however, detonate only when deer approach the area to be protected and have been shown to be effective up to 6 weeks. (Belant et al. 1996).

### **Visual scaring techniques**

Visual techniques such as use of mylar tape (highly reflective surface produces flashes of light), eye-spot balloons (the large eyes supposedly give deer a visual cue that a large predator is present), flags, effigies (scarecrows), sometimes are effective in reducing deer damage in a localized area for a limited time period.

### ***Repellents***

Repellents have had mixed results in reducing deer damage to shrubs and trees (Palmer et al. 1983, Matschke et al. 1984, Conover 1984, Hygnstrom and Craven 1988, Andelt et al. 1991, Craven and Hygnstrom 1994). Results are generally linked to deer numbers, availability of preferred food plant species, alternate food sources, season, and weather. Commercial repellents are costly ranging from \$20/gallon to \$80/gallon.

Repellents require continuous applications and are limited in their effectiveness. The effectiveness of a topical repellent is directly related to residue present on the plant. Rain, heavy dew and watering will remove the residue requiring reapplication of the material. The use of repellents can cause a decrease in native vegetation by shifting browsing pressure from protected plants to native flora. The effectiveness of repellents does decrease as deer numbers increase and available food plants decrease.

## ***LETHAL METHODS***

### ***Sharp shooting***

Studies have suggested that localized management by removing deer is an effective tool where deer are causing undesirable effects (McNutly et al. 1997). This research supports the hypothesis that the removal of a small, localized group of white-tailed deer would create a population of low density in that localized area.

WS would conduct sharp shooting, with center-fire rifles, during daylight or at night using spotlights or night-vision equipment. Rifles would be equipped with noise suppressors, to avoid disturbance to airport operations or other airport users and to facilitate success by minimizing the tendency of deer to flee from the sound of gunfire. Shots would be taken from elevated positions in tree stands or in the beds of trucks. Elevated positions cause a downward angle of trajectory, so that any bullets that inadvertently miss or pass through targeted deer, will hit into the ground or into earthen embankments to minimize the risk of stray bullets presenting a safety hazard to people, pets, or property. WS personnel would strive for head and neck shots when shooting deer to achieve quick, humane kills. Bait may be used to attract deer to safe sites for shooting and to enhance success and efficiency. The venison from deer killed by WS would be, when possible, processed and donated for consumption, at one or more charitable organizations. WS will be responsible for properly preparing deer and the delivery to a USDA approved meat processor.

Only WS personnel who have completed firearms safety training, have demonstrated skill and proficiency with the firearms used for deer removal, and have been approved for sharp shooting by the State Director in New York will participate in sharp shooting deer.

Firearm use is very sensitive and a public concern because of safety issues relating to the public and misuse. To ensure safe use and awareness, WS employees who use firearms to conduct official duties are required to attend an approved firearms safety-and-use training program within three months of their appointment and a refresher course every three years afterwards (WS Directive 2.615). WS employees who carry firearms as a condition of employment, are required to sign a form certifying that they meet the criteria as stated in the *Lautenberg Amendment* which prohibits firearm possession by anyone who has been convicted of a misdemeanor crime of domestic violence.

### ***Live Capture and Euthanasia***

Some situations restrict or do not warrant standard shooting operations. In such cases it may be appropriate to remove individual deer by trapping and euthanizing the animals. Clover traps are one type of trap that can be used to catch deer. The deer would then be dispatched using a handgun or a rifle.

### ***Hunting Programs***

WS sometimes recommends sport hunting as a viable damage management method when the deer can be legally hunted. A valid hunting license and other licenses or permits may be required by NYDEC. This method provides sport and food for hunters and requires no cost to the landowner.

## **APPENDIX E**

### **List of Preparers**

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